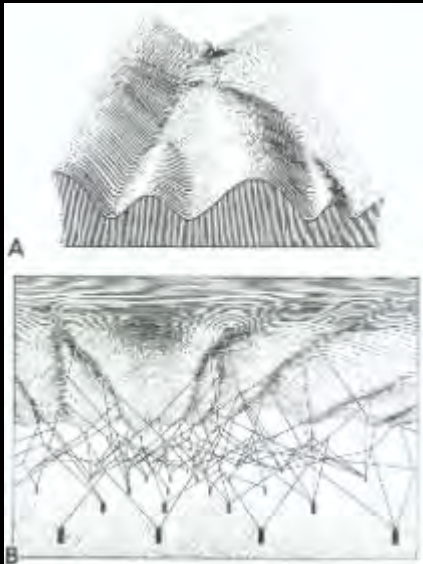


Edith Sitwell's hand holding a helical shell. (From 1958 Christmas card of Eve and Lance Whyte.)



Conrad Waddington, Epigenetic Landscape, 1957

**HUAS 6312-001
20537**

BIOS: Art, Architecture, Design, and Biology

Dr. Charissa N. Terranova

University of Texas at Dallas

Spring 2014

Monday 4:00-6:45

JO 3.532

Office Hours: Monday 1:00-4:00

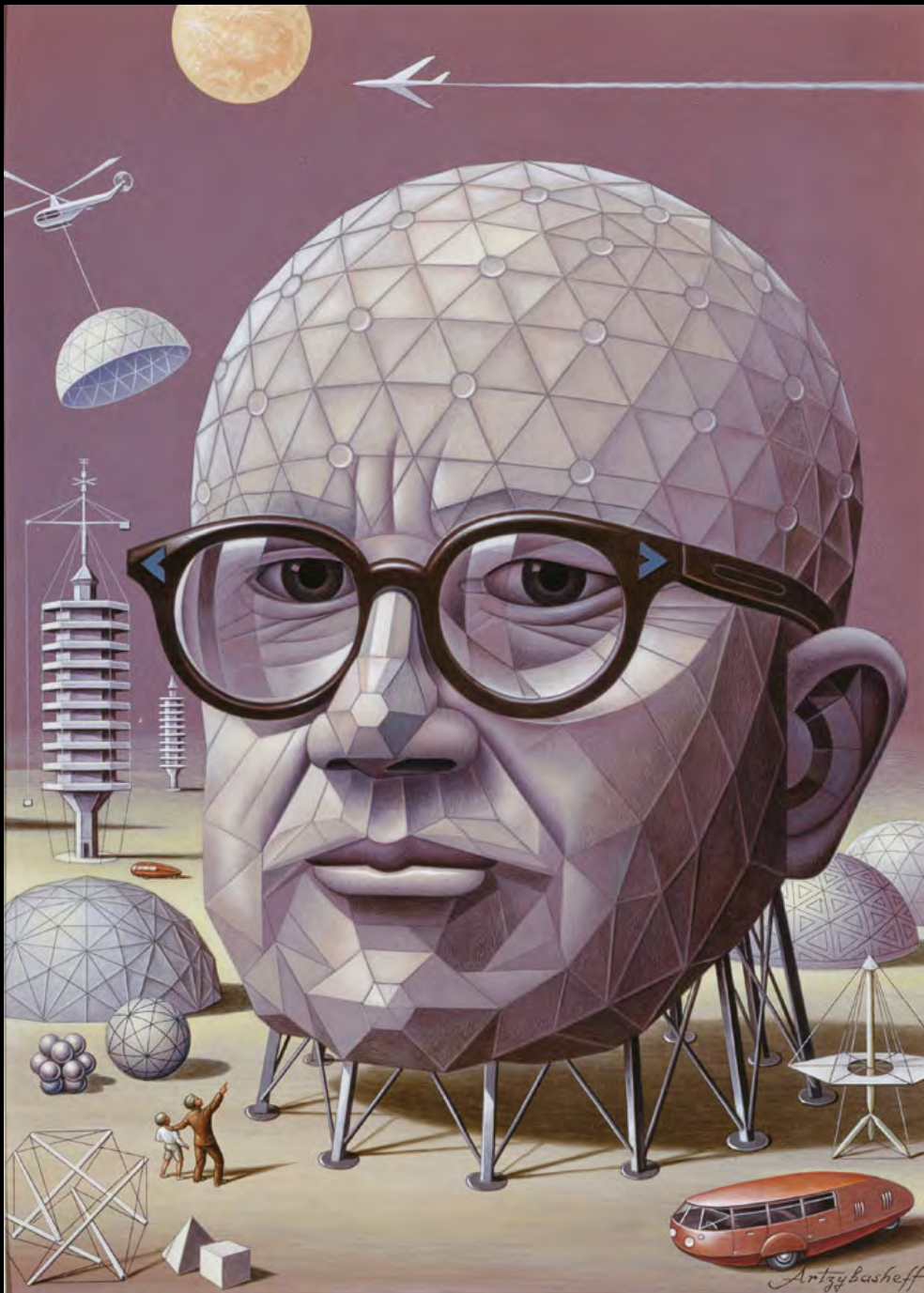
Office Location: JO 3.920

Contact: terranova@utdallas.edu

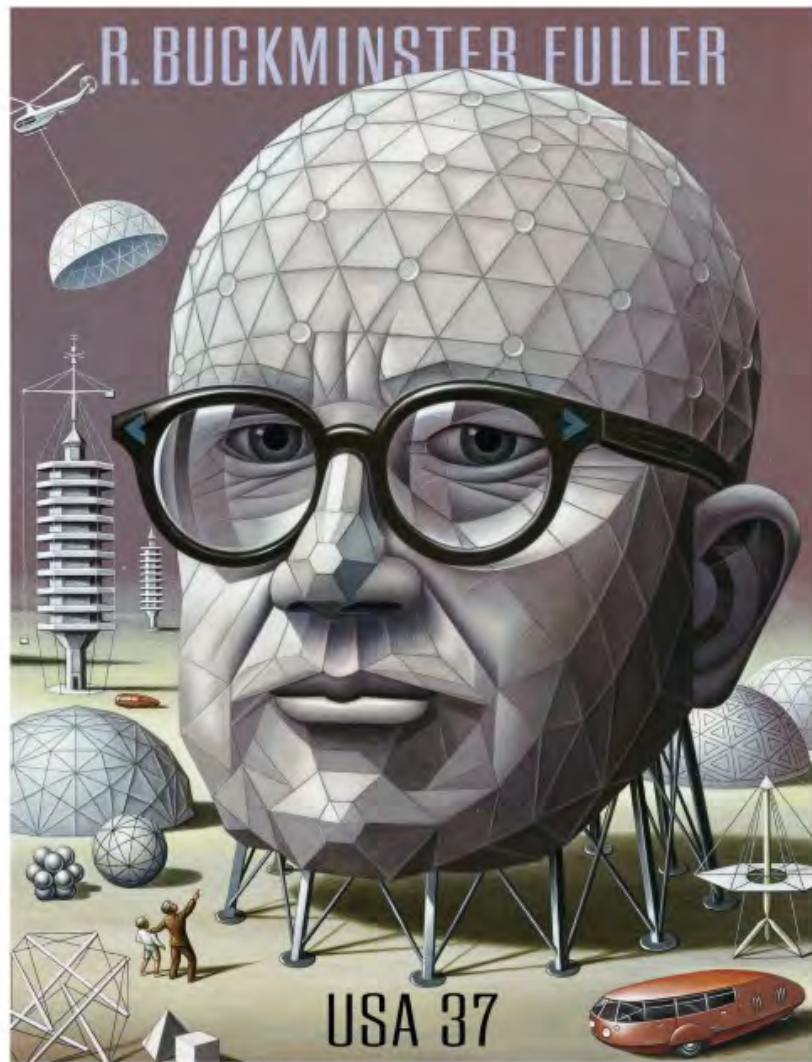
03/31/2014

On Growth and Form

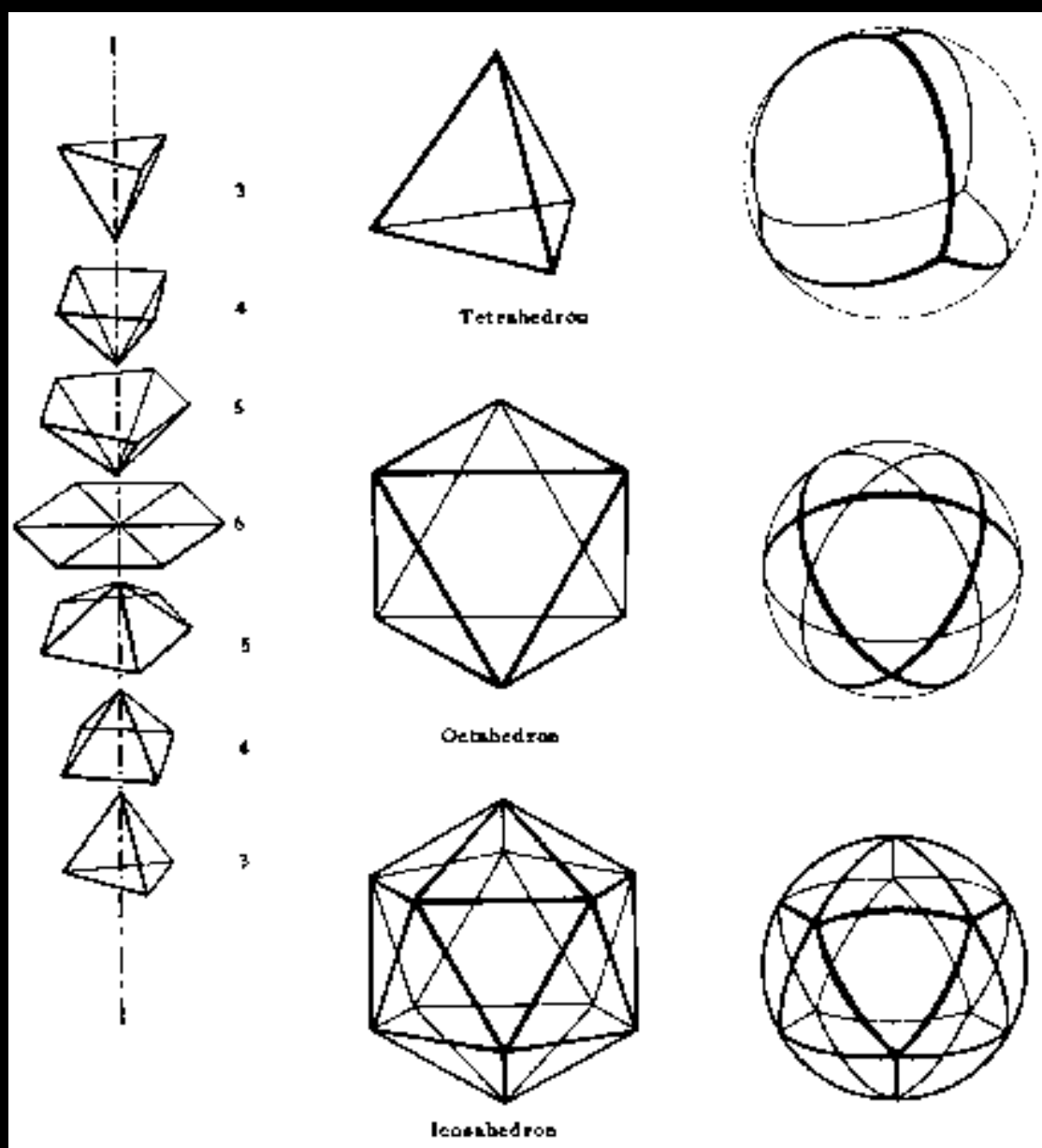
Tensegrity



Boris Artzybasheff, R. Buckminster Fuller,
1963

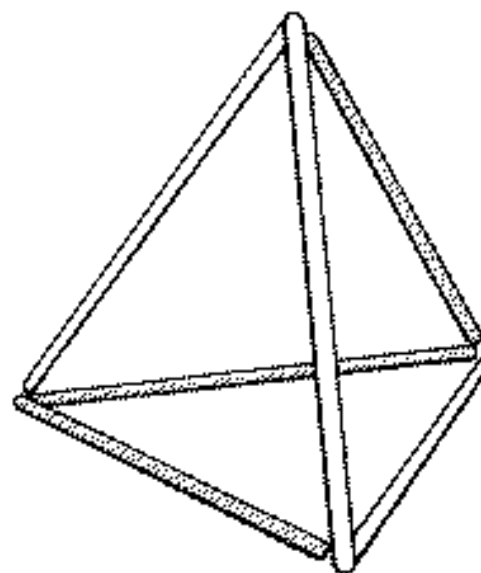
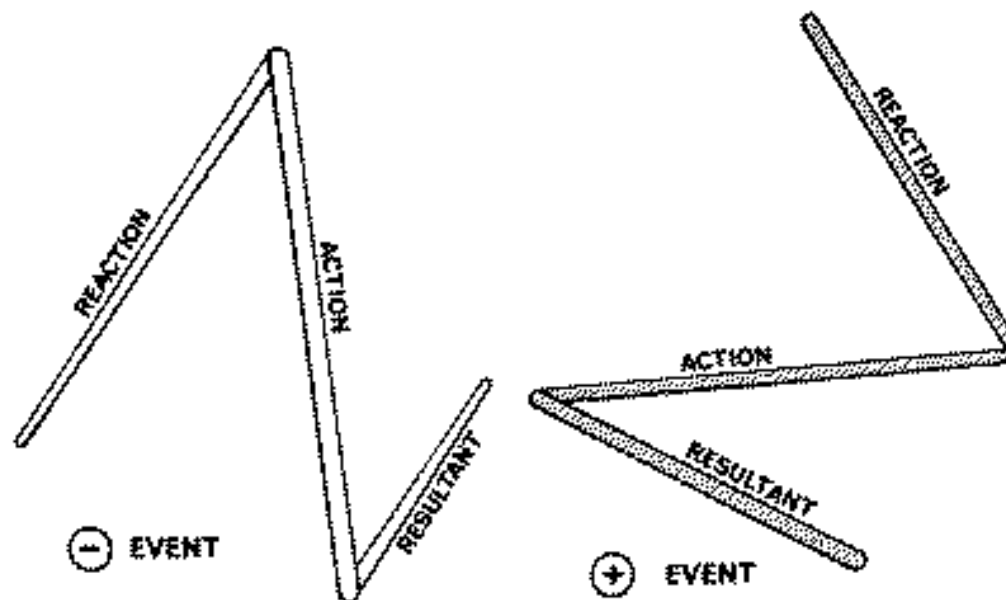


Tensegrity, tensional integrity or **floating compression**, is a structural principle based on the use of isolated components in compression inside a net of continuous tension, in such a way that the compressed members (usually bars or struts) do not touch each other and the prestressed tensioned members (usually cables or tendons) delineate the system spatially. The term *tensegrity* was coined by Buckminster Fuller in the 1960s as a portmanteau of "tensional integrity".



The Three Basic Structural Systems in Nature with Three, Four or Five Triangles at Each Vertex: Tetrahedron, Octahedron, Icosahedron

A TRIANGLE IS A SPIRAL
AND IS ONE ENERGY EVENT

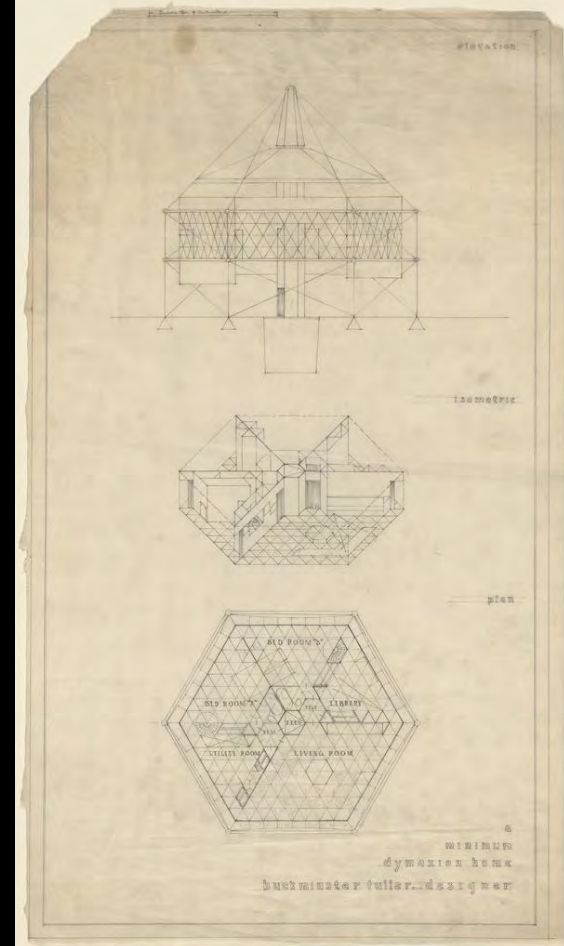
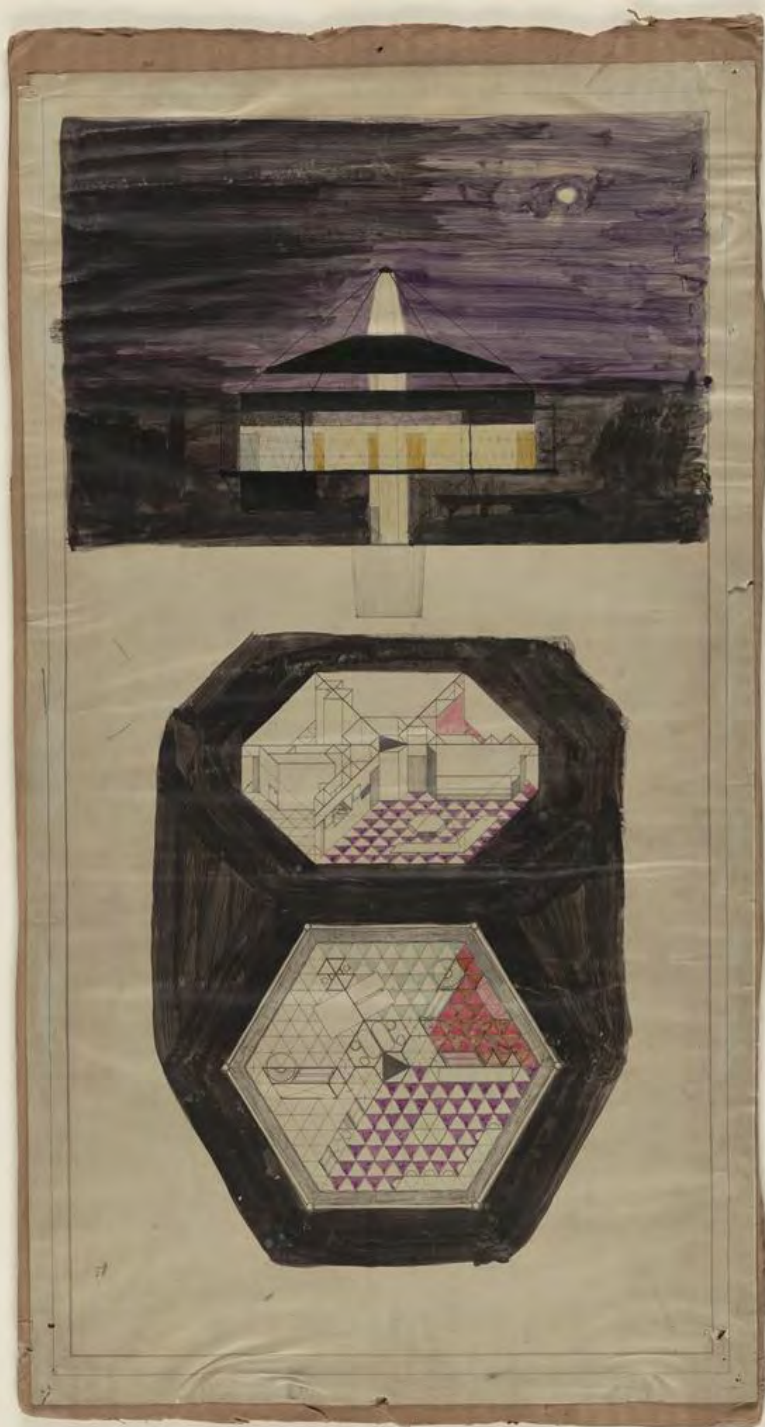


ONE POSITIVE + ONE NEGATIVE EVENT
= TETRAHEDRON

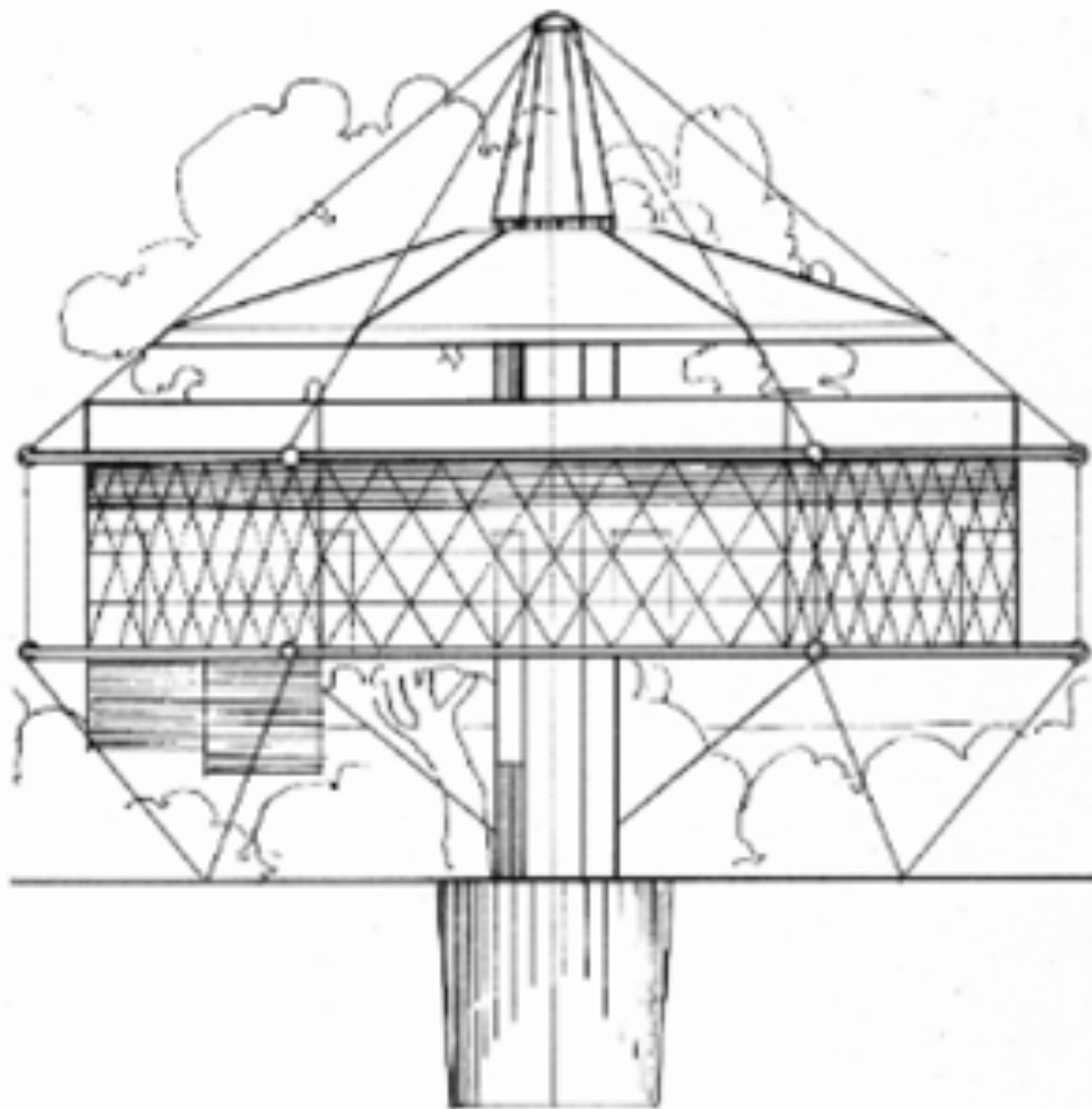
DYMAXION

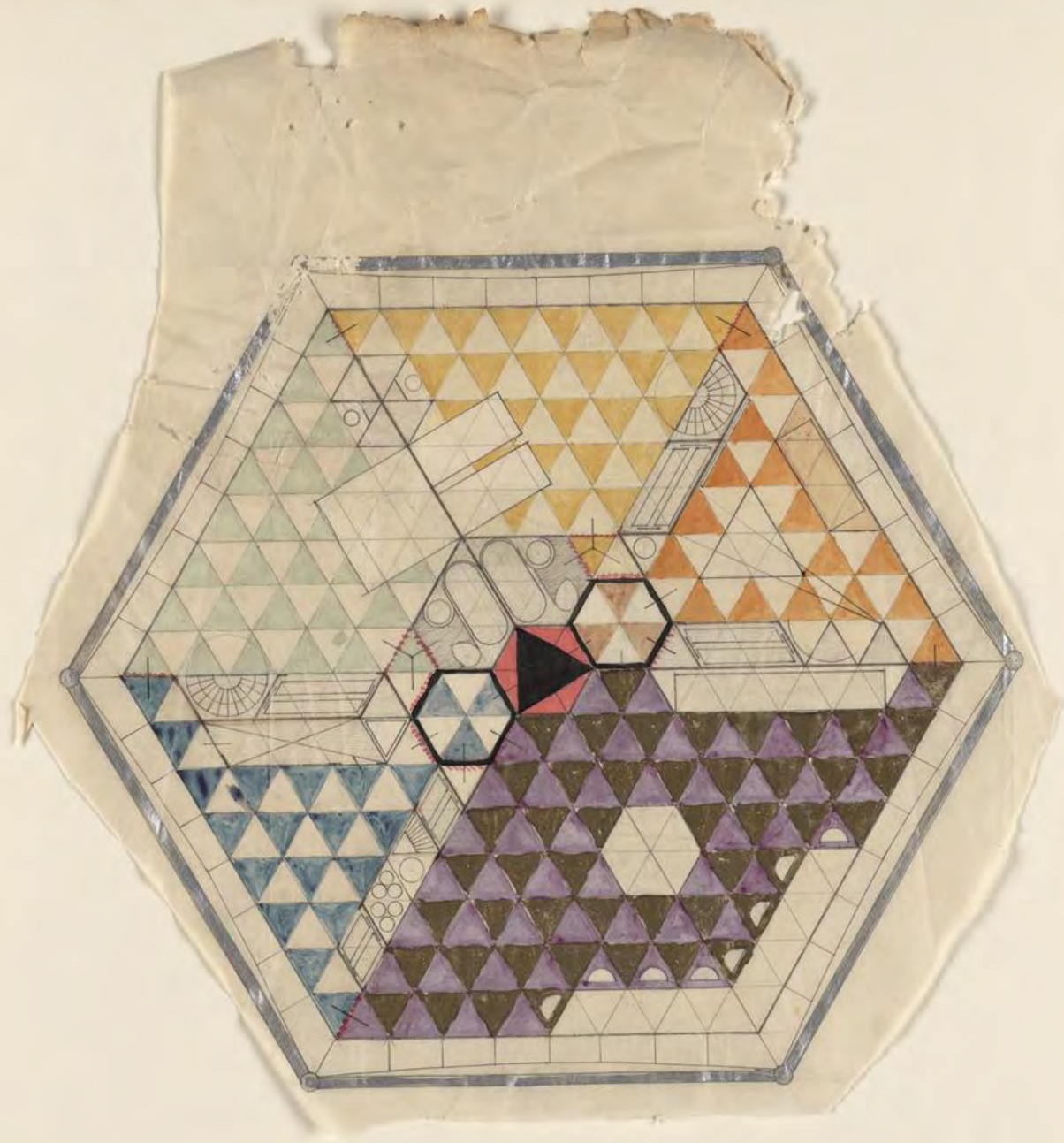
DYynamic -- **MAX**imum -
tens**ION****DYMAXION**

DYynamic -- **MAX**imum - tens**ION**



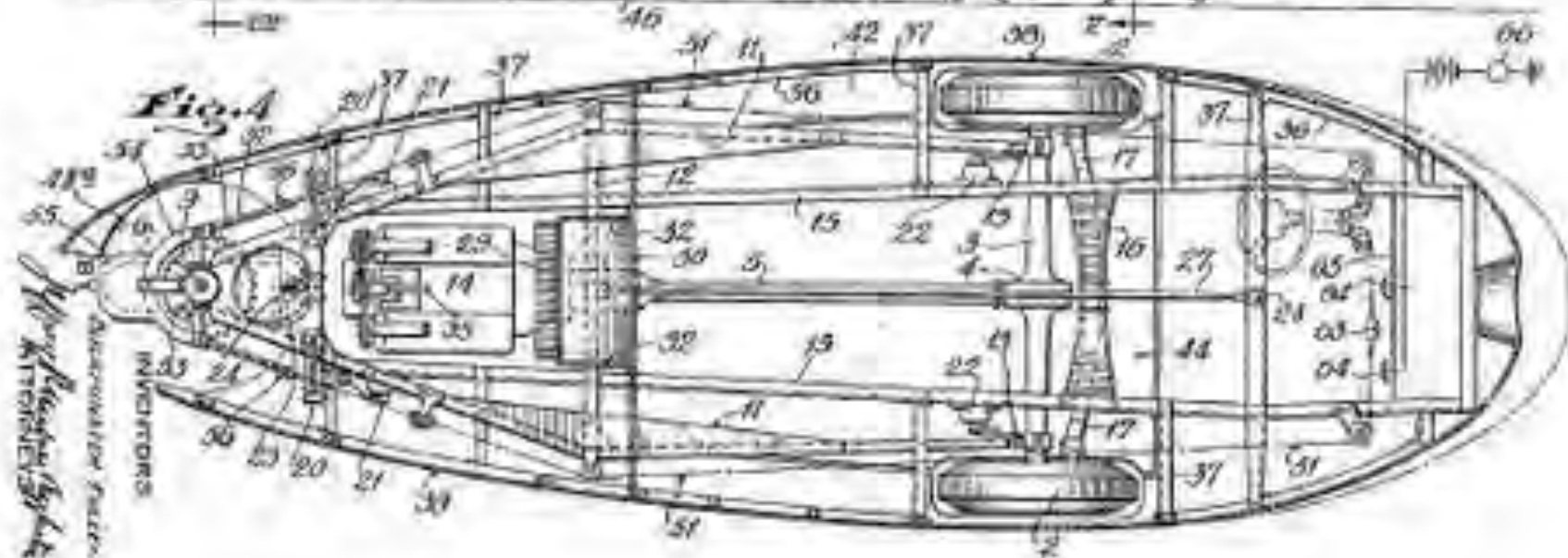
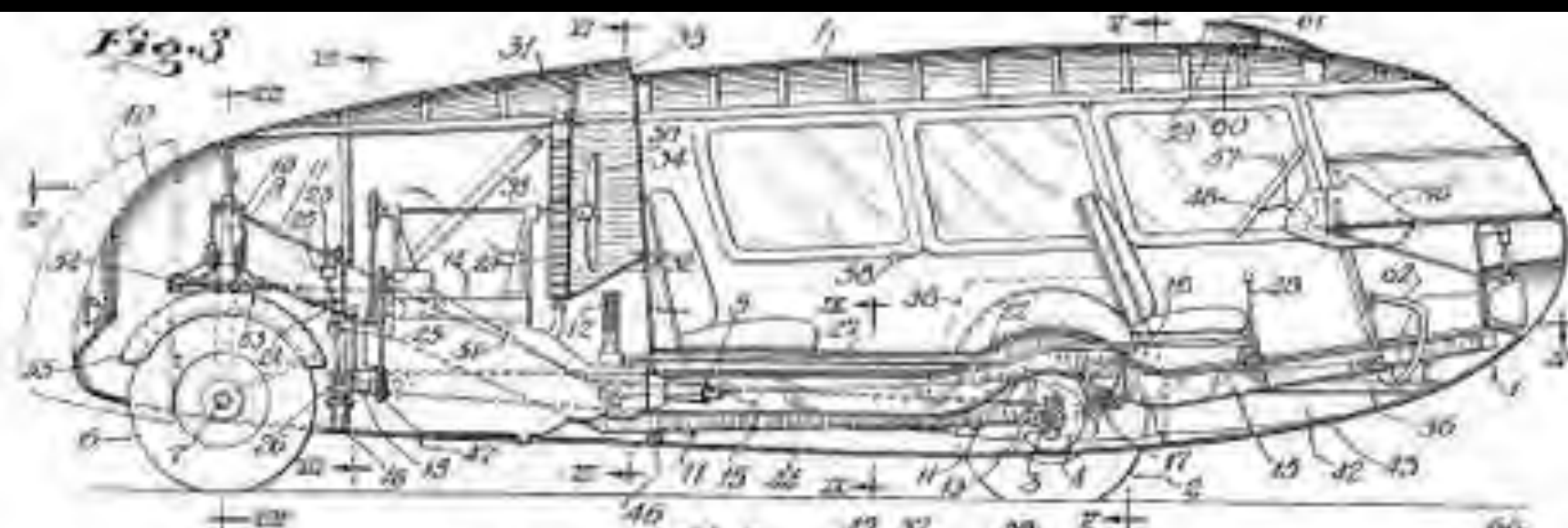
Buckminster Fuller, Dymaxion House/Dymaxion Living Machine, 1927-1929

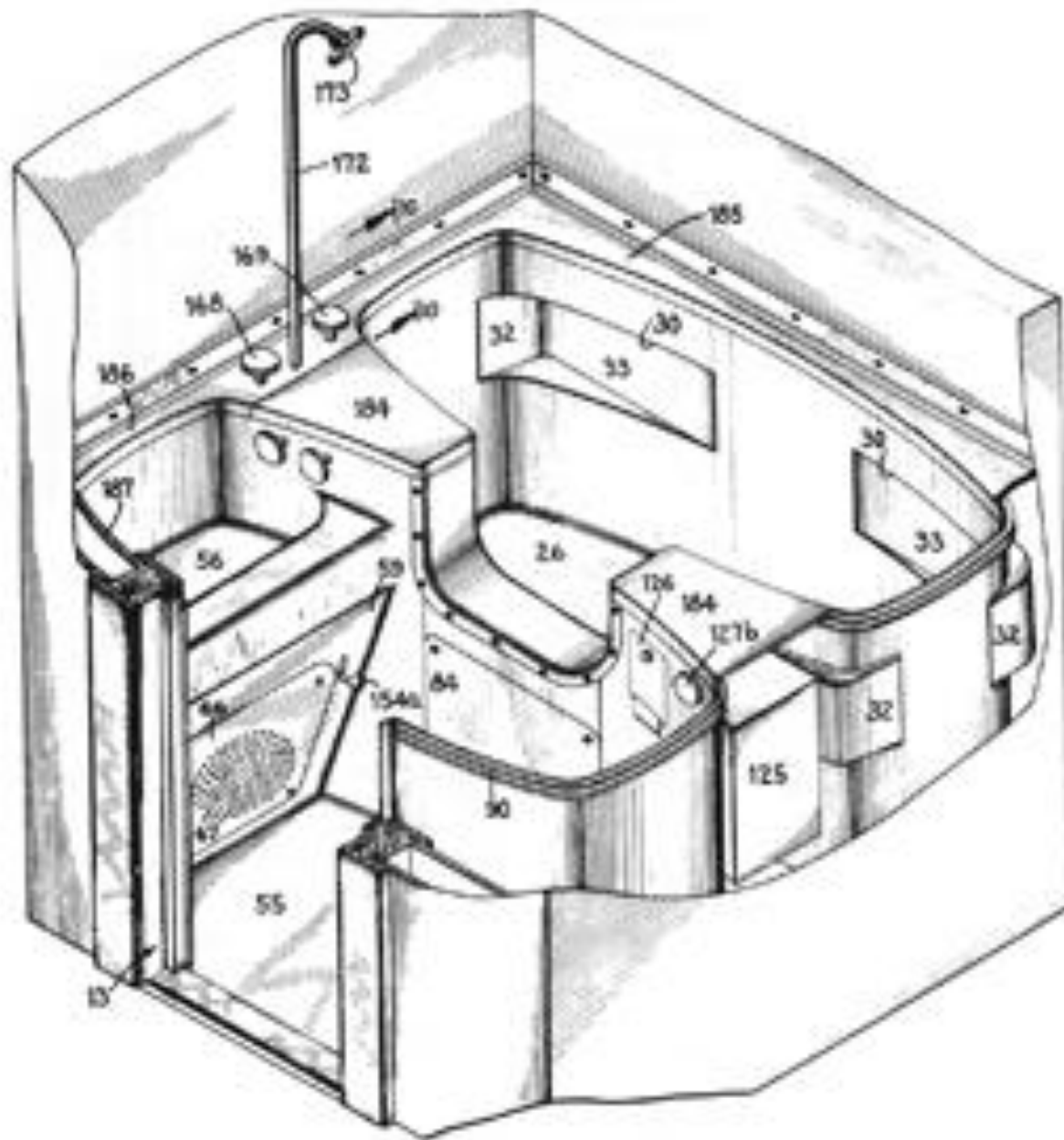






Buckminster Fuller, Dymaxion Car, 1933





Buckminster Fuller, Dymaxion Bathroom, 1937



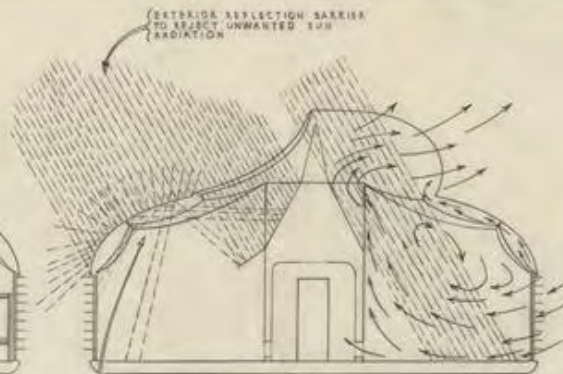
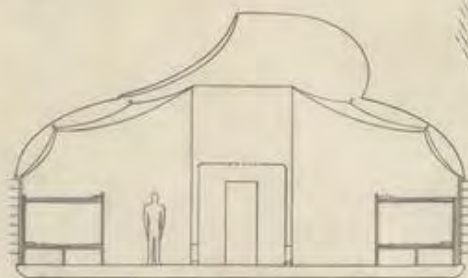
Fig. 1



Buckminster Fuller, Building Construction – Dymaxion Deployment Unit, United States Patent Office no. 2,343,764, filed March 21, 1941, serial no. 384,509, granted March 7, 1944

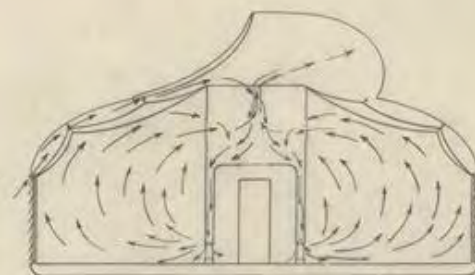


Buckminster Fuller, Wichita House, 1944



IN THE TROPICS WITH NON-MECHANICAL CIRCULATION OF AIR

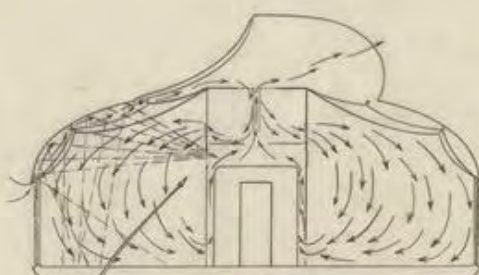
INTERIOR REFLECTION BARRIER
TO ECHO GENERATED HEAT OR LIGHT



IN THE TROPICS WITH MECHANICAL CIRCULATION OF AIR



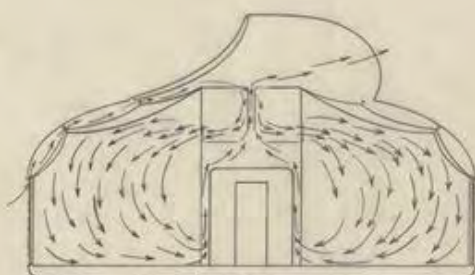
PLAN



IN THE ARCTIC WITH NON-MECHANICAL CIRCULATION OF HEAT

EXTERIOR REFLECTION BARRIER
TO REFLECT UNWANTED SUN RADIATION

INTERIOR REFLECTION BARRIER
TO ECHO GENERATED HEAT OR LIGHT

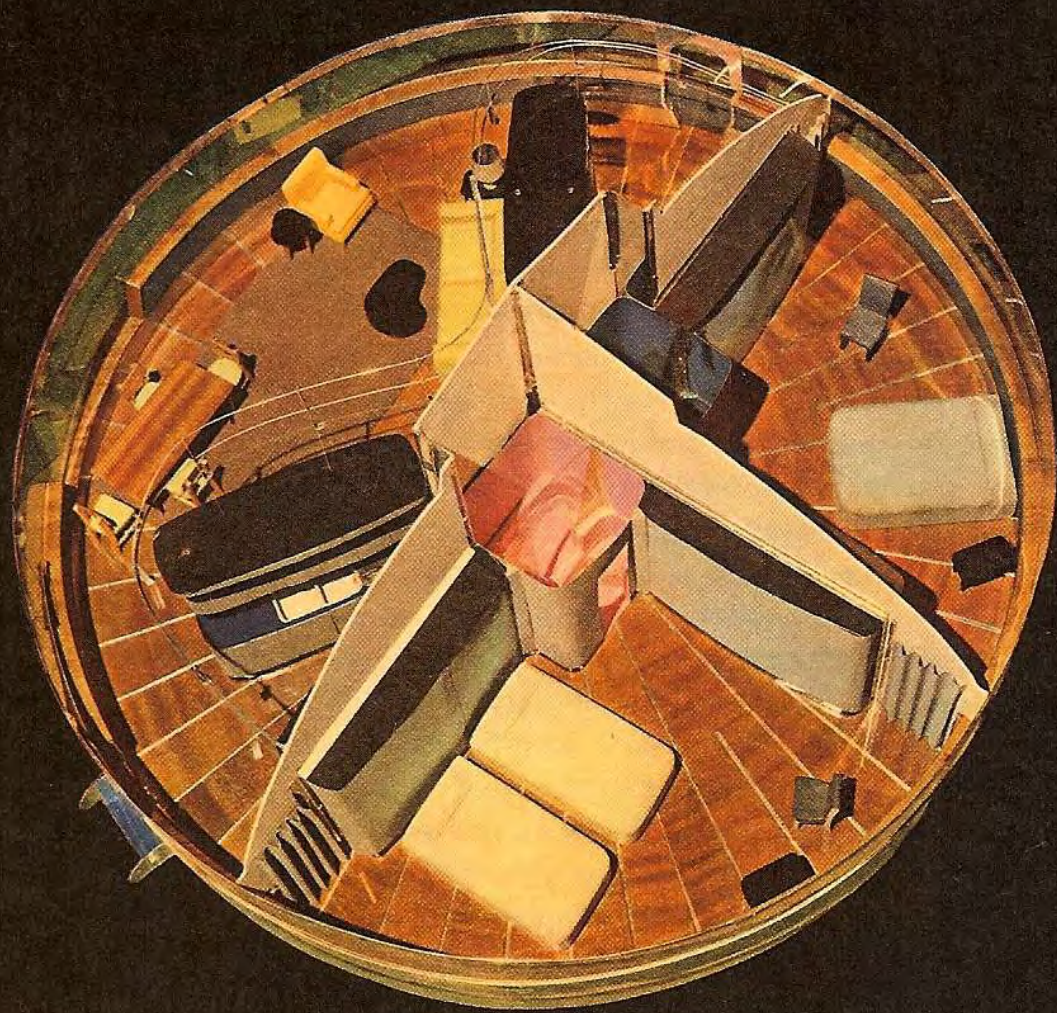


IN THE ARCTIC WITH MECHANICAL CIRCULATION OF HEAT

| | |
|--|---------------------|
| LYMANSON ENGINEERING WORKS, INC. | |
| W. B. LYMANSON, PRESIDENT & CHIEF ENGINEER | |
| TITLE | ALASKA SYSTEM NO. 2 |
| DESIGNED BY | DATE |
| CHECKED BY | REVISION DATE |
| REVISIONS | |
| NO. REVISIONS REQUIRED | REVISION DATE |
| REVISIONS | |







June 29, 1954

R. B. FULLER

2,682,235

BUILDING CONSTRUCTION

Filed Dec. 12, 1961

6 Sheets-Sheet 1

Fig. 1.

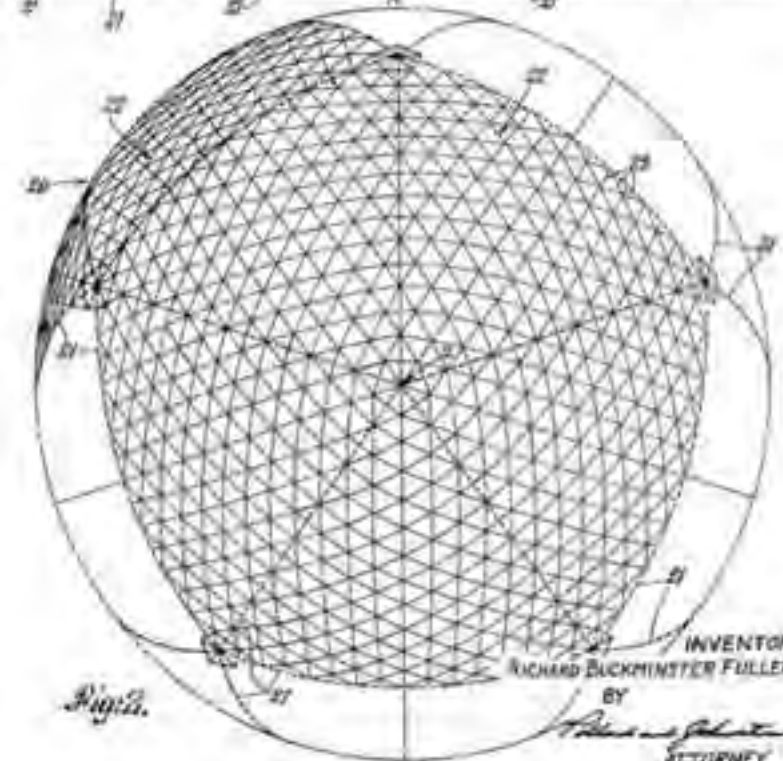
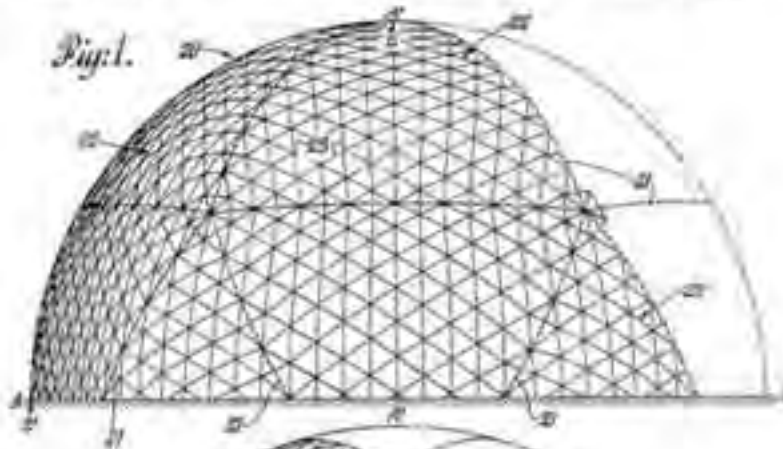


Fig. 2.

INVENTOR
RICHARD BUCKMINSTER FULLER

BY

ATTORNEY



Buckminster Fuller, Geodesic Dome, 1950
(invented/Montreal dome being built at right)



Northland Center, Detroit, Michigan, 1954

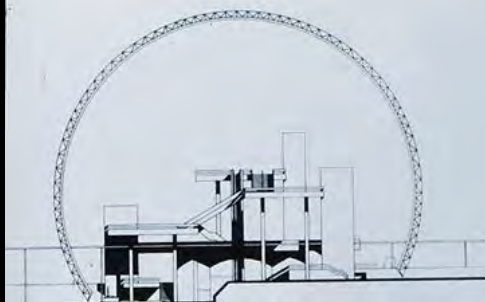


Accordion Truss, Northland Center, Detroit, Michigan, 1954

Buckminster Fuller and Shoji Sadao, United States Pavilion, Montreal World's Exposition, 1967



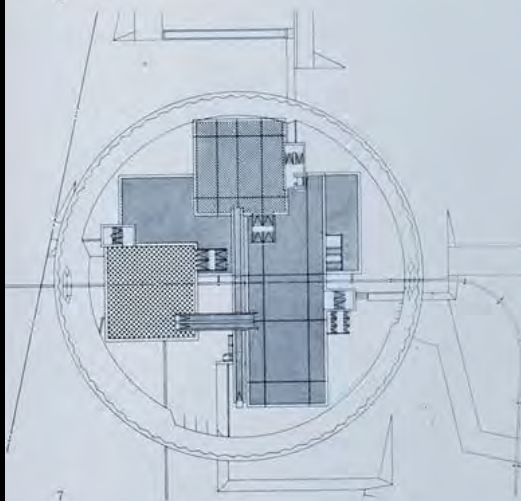




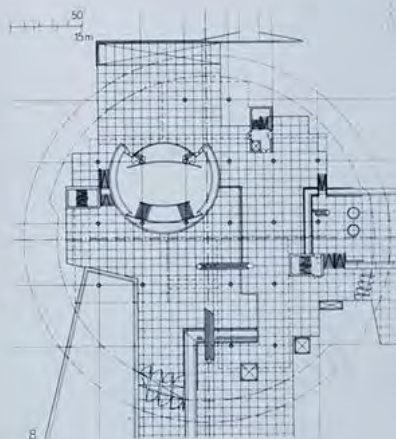
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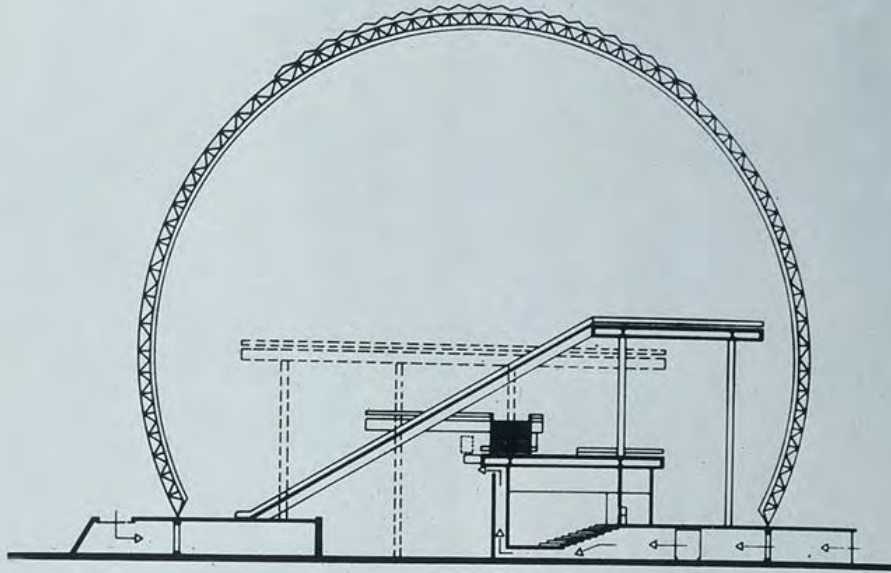
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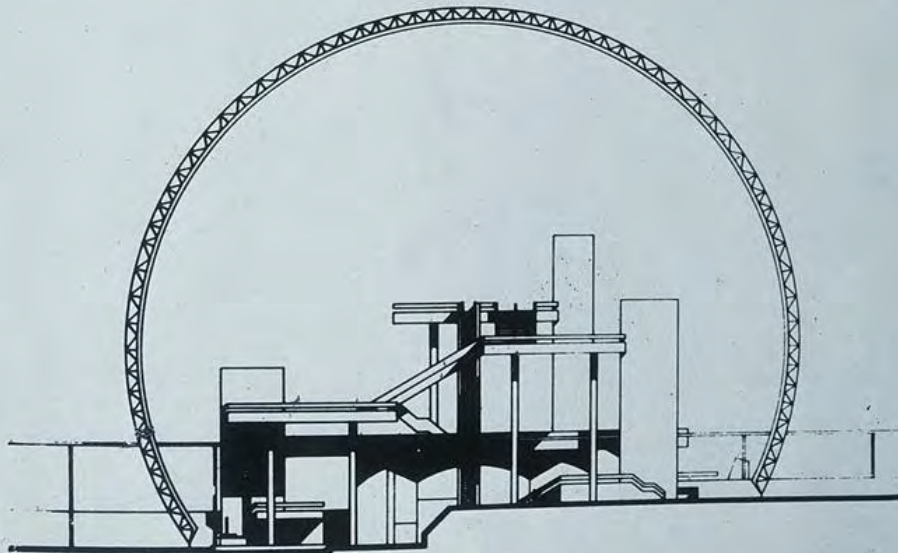
8

5. Indoor equipment, seen from the south.
6. Cross-section in the north-south direction, with the 123 ft. long escalator leading to the highest platform.
7. Plan with the four upper platform levels.
8. Plan with the three lower platform levels.
9. In spite of the manifold spatial interpenetrations and intersections of platforms, ramps and display boards (this photograph shows a view from the historic section upwards to the exhibition of contemporary paintings displayed on high, narrow wall panels), the dome was impressive from every vantage point. The dynamic effect was reinforced by the escalators and the "Minirail" system which provided local transportation through the Pavilion.
10. Almost playfully, space travel was displayed on the highest platform. The dominant feature under the spacious dome was provided by the three orange-white striped parachutes of the Apollo capsule.
11. Instead of pedagogic pedantry, wit and self-deprecation were the dominating features. The section entitled "The American Spirit" contained selected samples of folk art: branding irons of cowboys, sprouting like flowers; guitars of pop singers; and a tower of home-made dolls.
12. In the "Film" section, Hollywood is gaily debunked: Among film stills Ben Hur's Roman chariot of 1925, Charlie Chaplin's garbage bin, and Greta Garbo's golden bed.

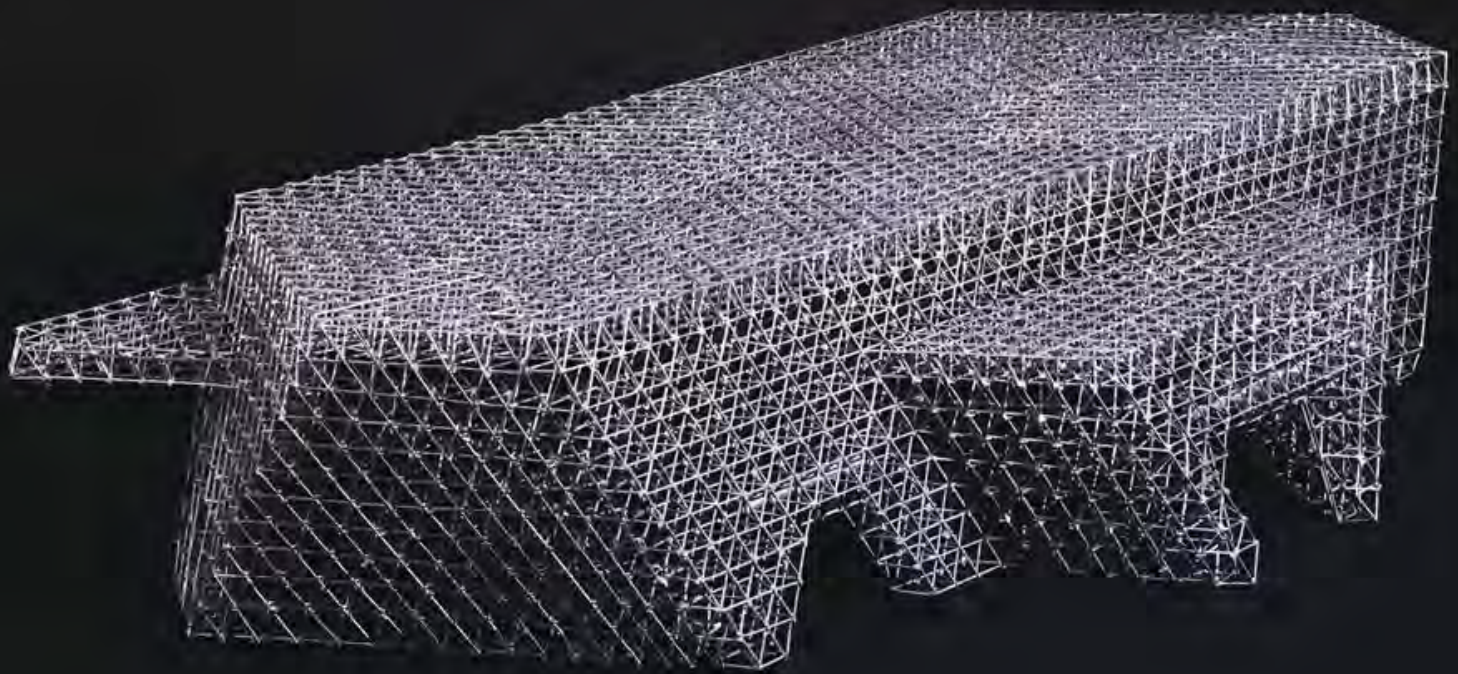
5. Ansicht der Pavilloneinbauten von Süden.
6. Schnitt in Nord-Süd-Richtung mit der 37,5 m langen Rolltreppe zur obersten Plattform.
7. Grundriß mit den vier oberen Plattformenebenen.
8. Grundriß mit den drei unteren Ebenen.
9. Trotz vielfältiger räumlicher Durchdringungen und Überschneidungen von Plattformen, Schrägrampen und Ausstellungstafeln (hier ein Blick aus der historischen Abteilung hinauf zur Ausstellung zeitgenössischer Malerei, auf hohen schmalen Wänden) war die Kugelhülle von jedem Standpunkt aus erlebbar. Rolltreppen und die quer durch den Pavillon fahrende Minirail-Einschielenbahn verstärkten den dynamischen Effekt.
10. Fast spielerisch präsentierte sich die Raumfahrtsschau auf der obersten Plattform. Stärkster Akzent unter der weitraumigen Kuppel waren die drei orange-weiß gestreiften Fallschirme der Apollokapsel.
11. Statt lehrhaften Ernstes dominierten Witz und Selbstrironie. Die Abteilung »Der amerikanische Geist« operierte mit ausgesuchten Volkskunst-Beispielen: Brenneisen von Cowboys, wie Blumen sprießend, Gitarren der Volkssänger und ein Turm aus selbstgemachten Puppen.
12. Im Sektor »Film« heitere Entmythologisierung Hollywoods: zwischen Filmbildern Greta Garbos goldenes Bett, Ben Hurs römischer Wagen von 1925 und Charlie Chaplins Mülltonne.



Cross section in the north-south direction, with the 123-feet long escalator leading to the highest platform.



Indoor equipment seen from the south.



Model for an Airplane Hangar, 1955



Buckminster Fuller and Shoji Sadao, Dome Over
Manhattan, 1960



4" map
not
Wash. Journal
city -

FOLLOW STAT ON LIO
SIZE AND POSITION

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NO. 8-0104 PAGE 145
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PLAYBOY - JANUARY, 1968

[CITY OF THE FUTURE]

Tetrahedron City, Yomiuriland, Japan, aerial perspective, 1968

R. Buckminster Fuller Operating Manual for Spaceship Earth

Series Editor Jaime Snyder
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