



a- spontana gradnja

adhokizam, low(no)tech,
participacija korisnika u građenju
“divlja gradnja”

b-planska gradnja

regulativa, propisi, standardi, tipska gradnja
“urban sprawl”

c-prefabrikacija

(industrijska proizvodnja elemenata ili cijele stambene jedinice)
mobilne stambene jedinice

d-tehnofuturistički projekti

high-tech snovi



MASOVNA IZGRADNJA OBITELJSKIH KUĆA (od blata.....od snova) 17.XII,2013.





“Cijeli svijet bi bio nerazvijen, ako bi se njegova razvijenost cijenila prema stanovanju. Radniku kada plati hranu, odjeću i druge osnovne potrebe, malo ostane za stan - od Harlema (NewYork) do Konga, od Perua do Pakistana”

Charles Abrams ('70s)

“Gdje kapitalizam*(zapadni) nije uspio?”

”Nije osigurao dobre kuće i stanove po umjerenj cijeni”

Kennett Galbraith (1977)

“Stanovanje je prije agore ili crkve. Možemo imati najljepše muzeje na svijetu, ali smo još uvijek siromašni kao ljudi ako nemamo pristojno stanovanje”



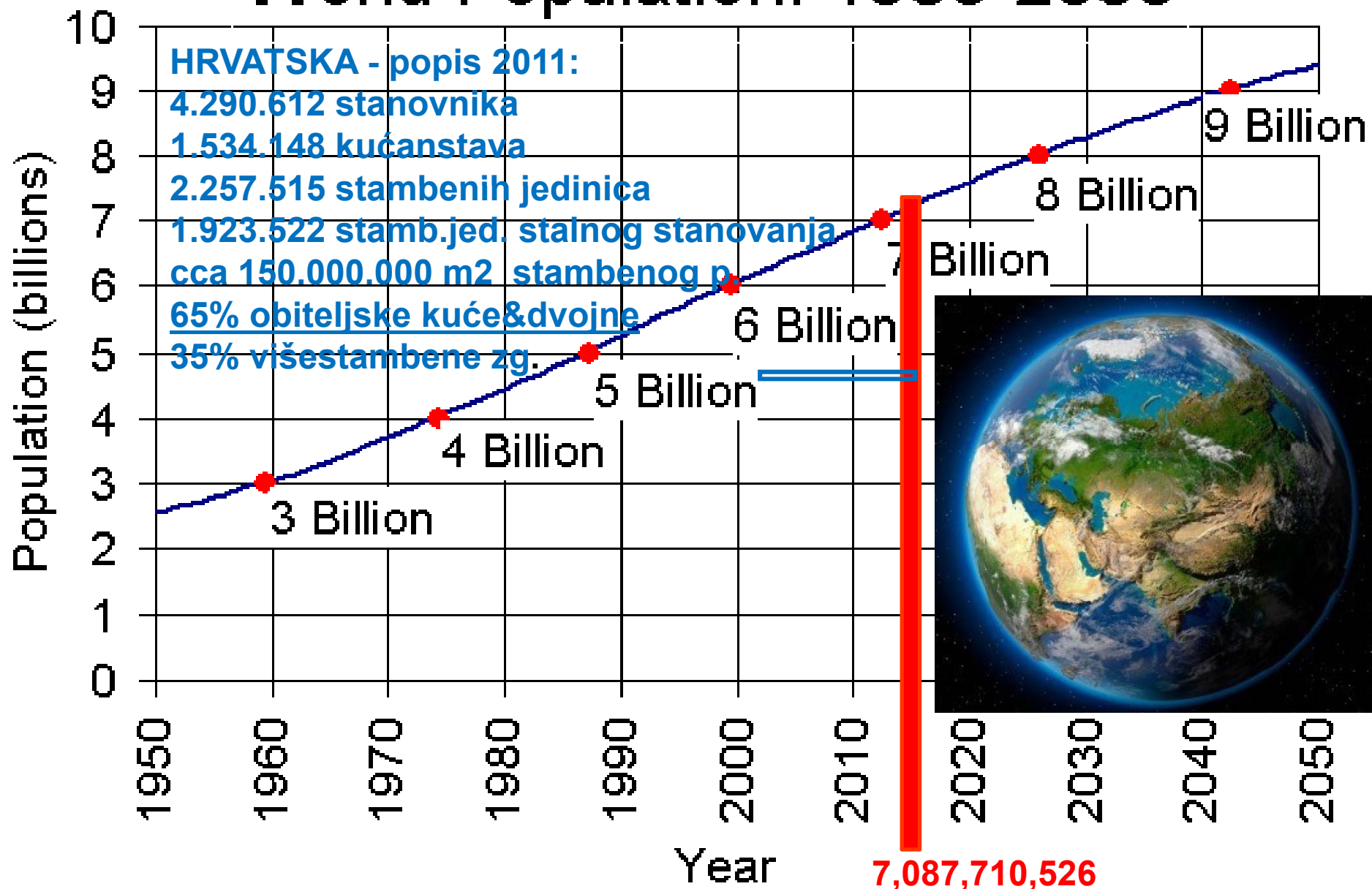
I.M.Pei ('80s)

“1 san x 1.000.000 = kaos”

Le Corbusier ('30s)

1 san x 7,087,710,526 = ??????????

World Population: 1950-2050



Source: U.S. Census Bureau, International Data Base, August 2006 version.

Selo Banani, pleme Dogoni, Republika Mali, zapadna Afrika



(“vernakularno razdoblje”, predindustrijsko doba)

Rouse Avenue squatter settlement, Old Delhi **2150 inhabitants / 2 acres = ??? st/ha ?**
/A Case Study of Delhi – '70s /

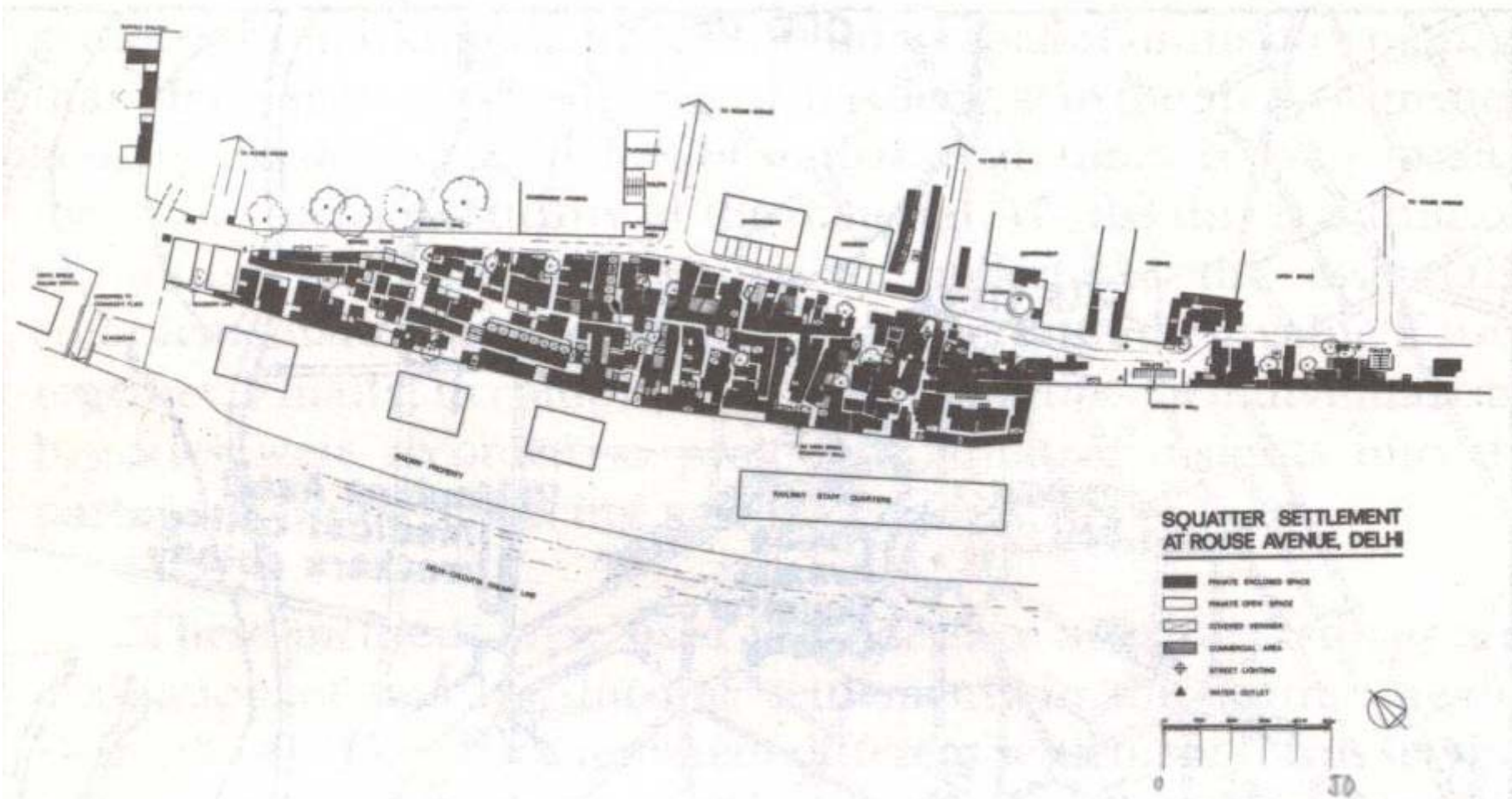
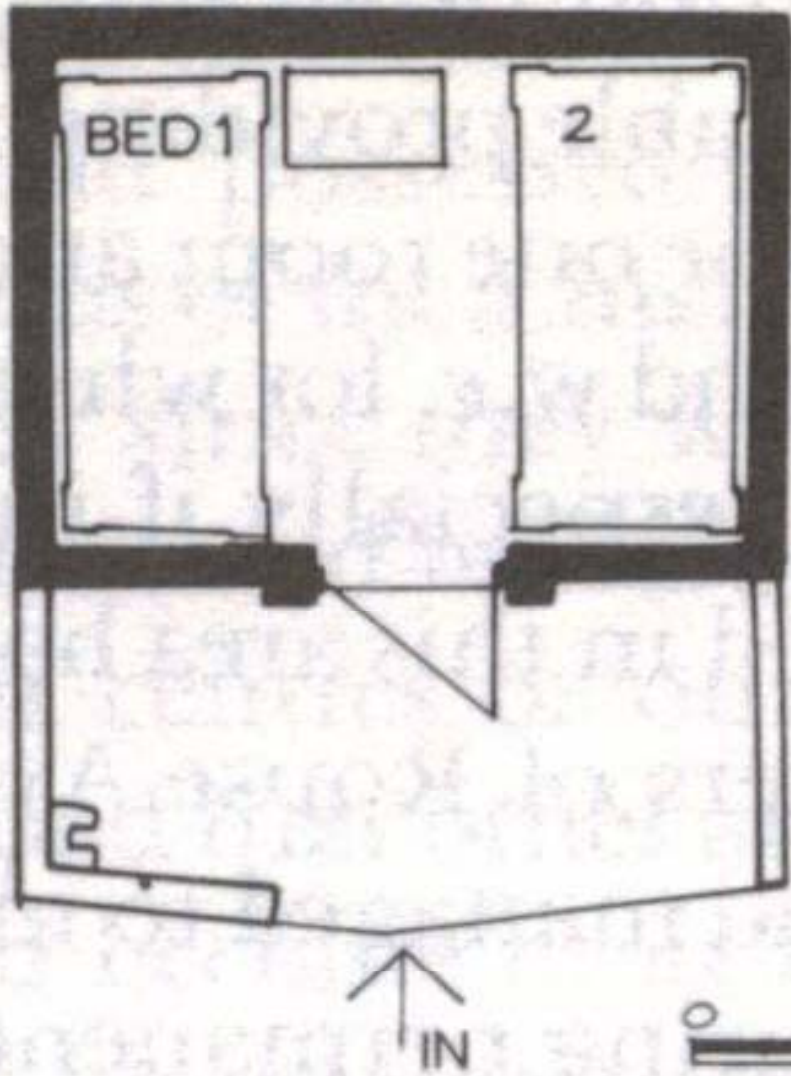
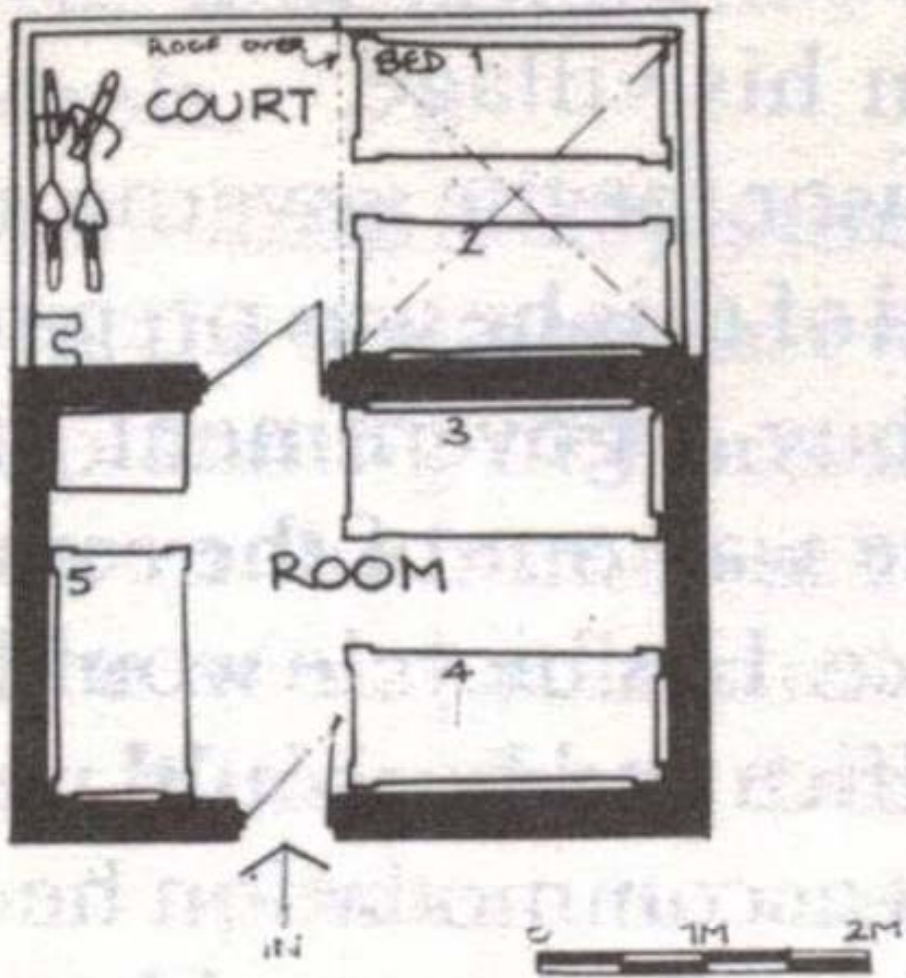


Figure 3.7 Detailed layout of Rouse Avenue squatter settlement, showing open and enclosed private spaces, commercial areas and services.



64 *Hari Shankar's hutment*

$$2 \times 2,6 = 5,2 \text{ m}^2$$

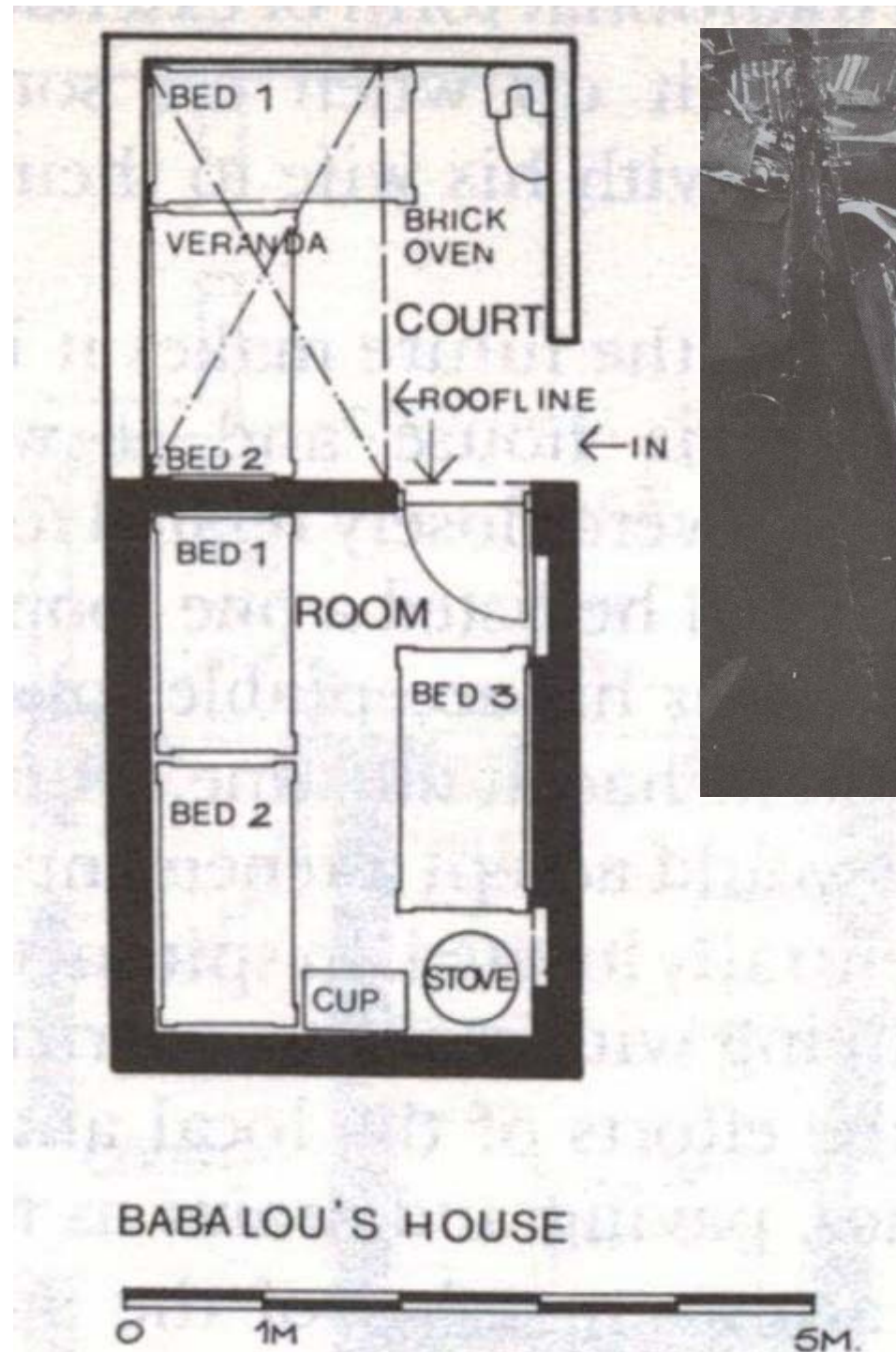


**OTAC (udovac) + 4 DJECE +
ŠOGOR + PRIJATELJ**

3,2 x 2,5 = 8,0 m²

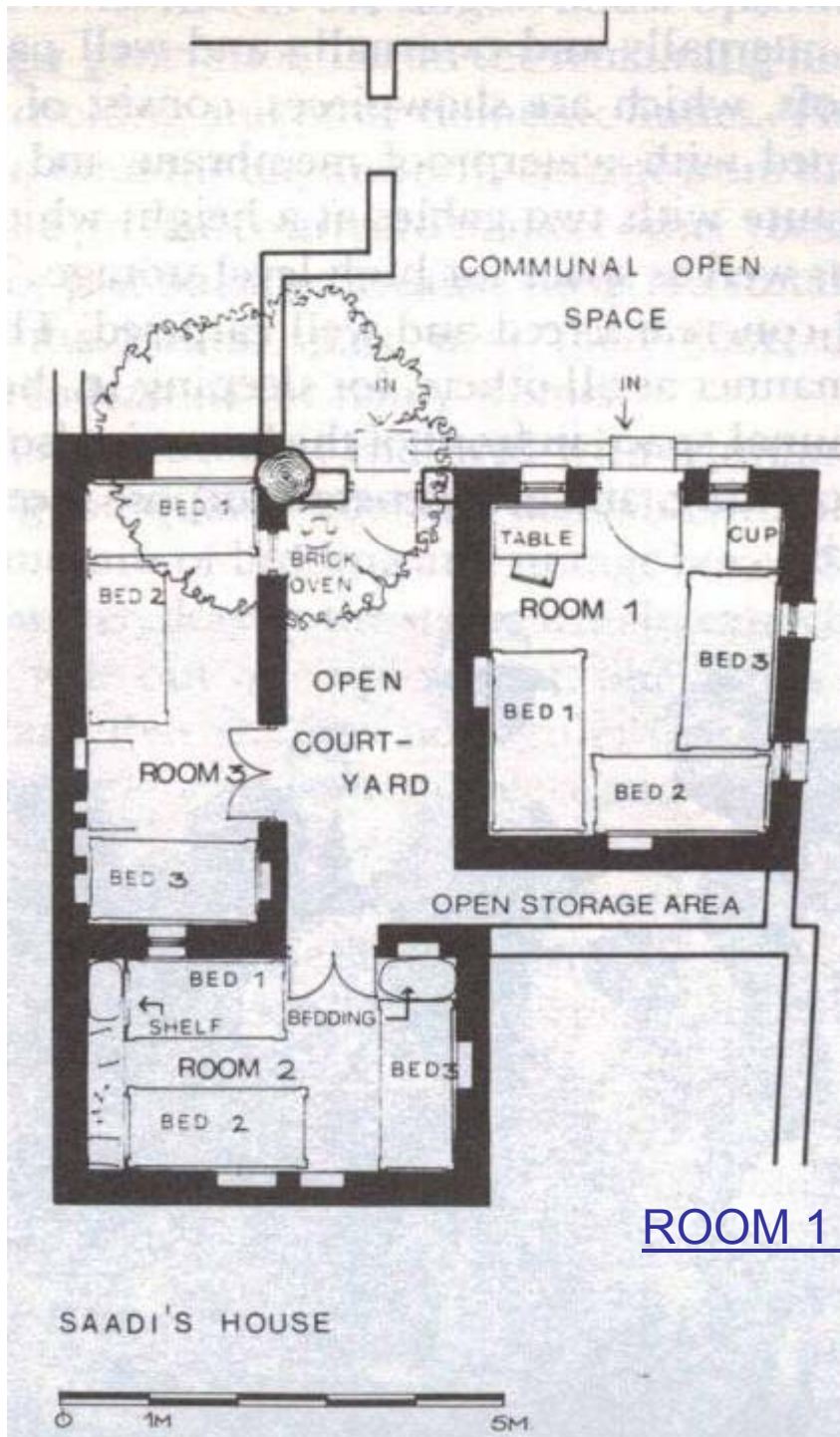
39

Shanker Lal's dwelling



MUŽ (kurir) + ŽENA + 6 DJECE

$3 \times 2,5 = 7,5 \text{ m}^2$



OTAC + MAJKA

+ 2 (maloljetna) SINA

+ (jedan odrasli) SIN + SNAHA + 5 DJECE

+ (drugi odrasli) SIN + SNAHA + 4 DJECE

= 17 osoba

ROOM 1 + ROOM 2 + ROOM 3 = 28 M²

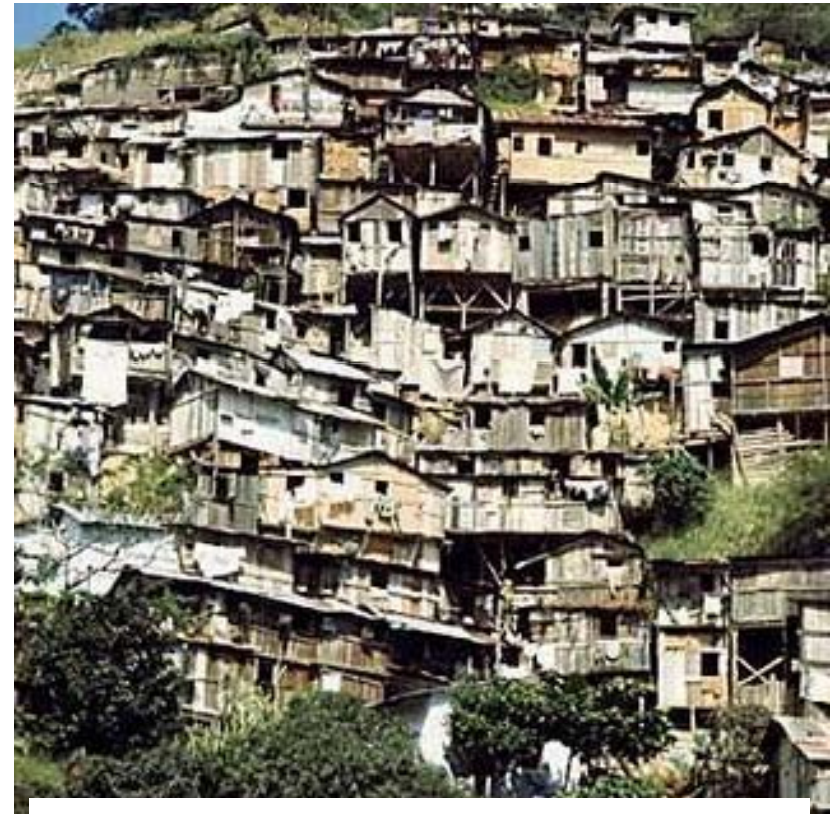
courtyard= 10.m²

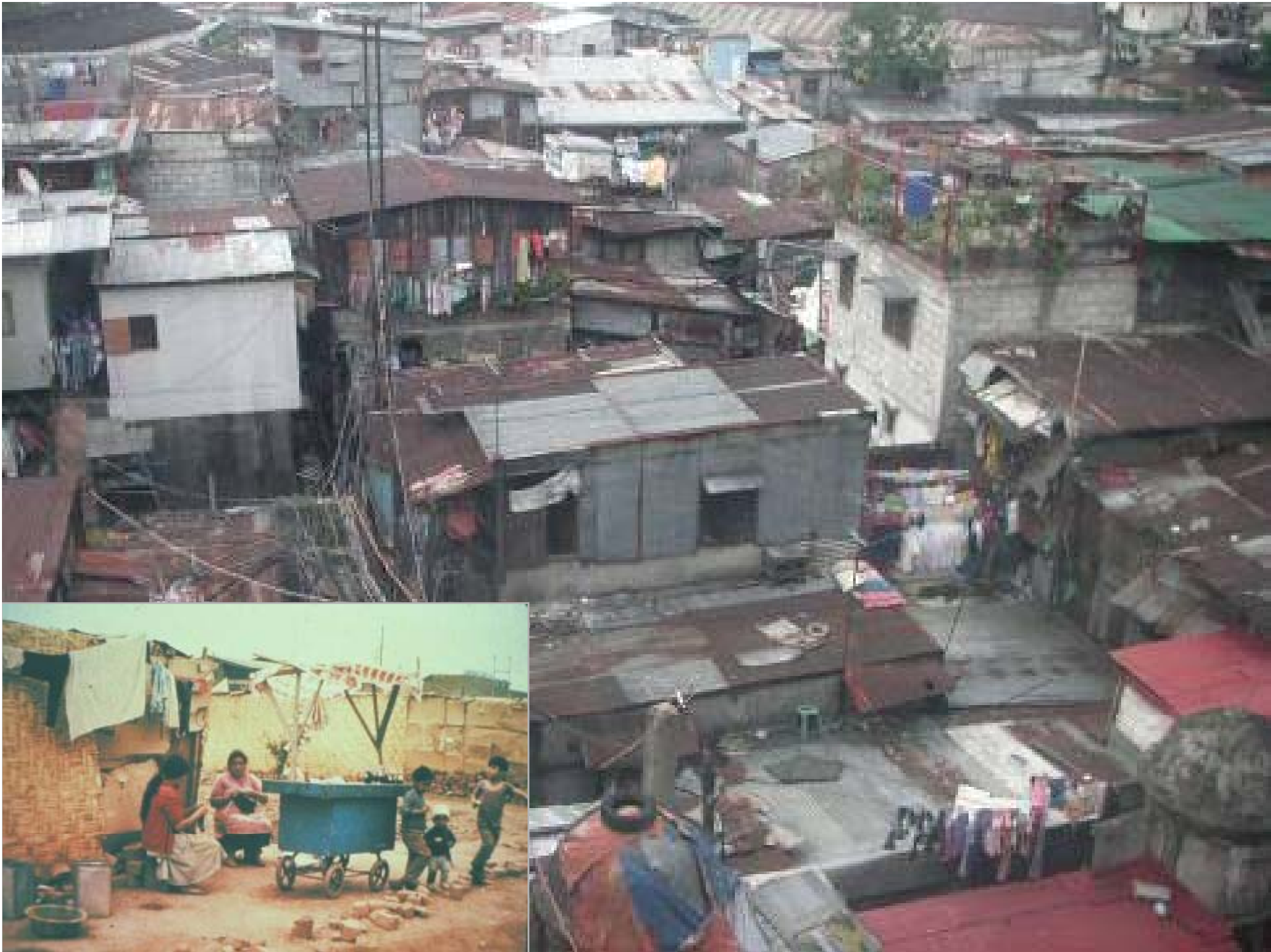


BARRIADA, BARRIO - divlja naselja u Latinskoj Americi

FAVELA - divlja naselja u Brazilu

SLUM (shanty town)/engl."sirotinjska četvrt, prljavi i zloglasni dio grada"-Drvodelić

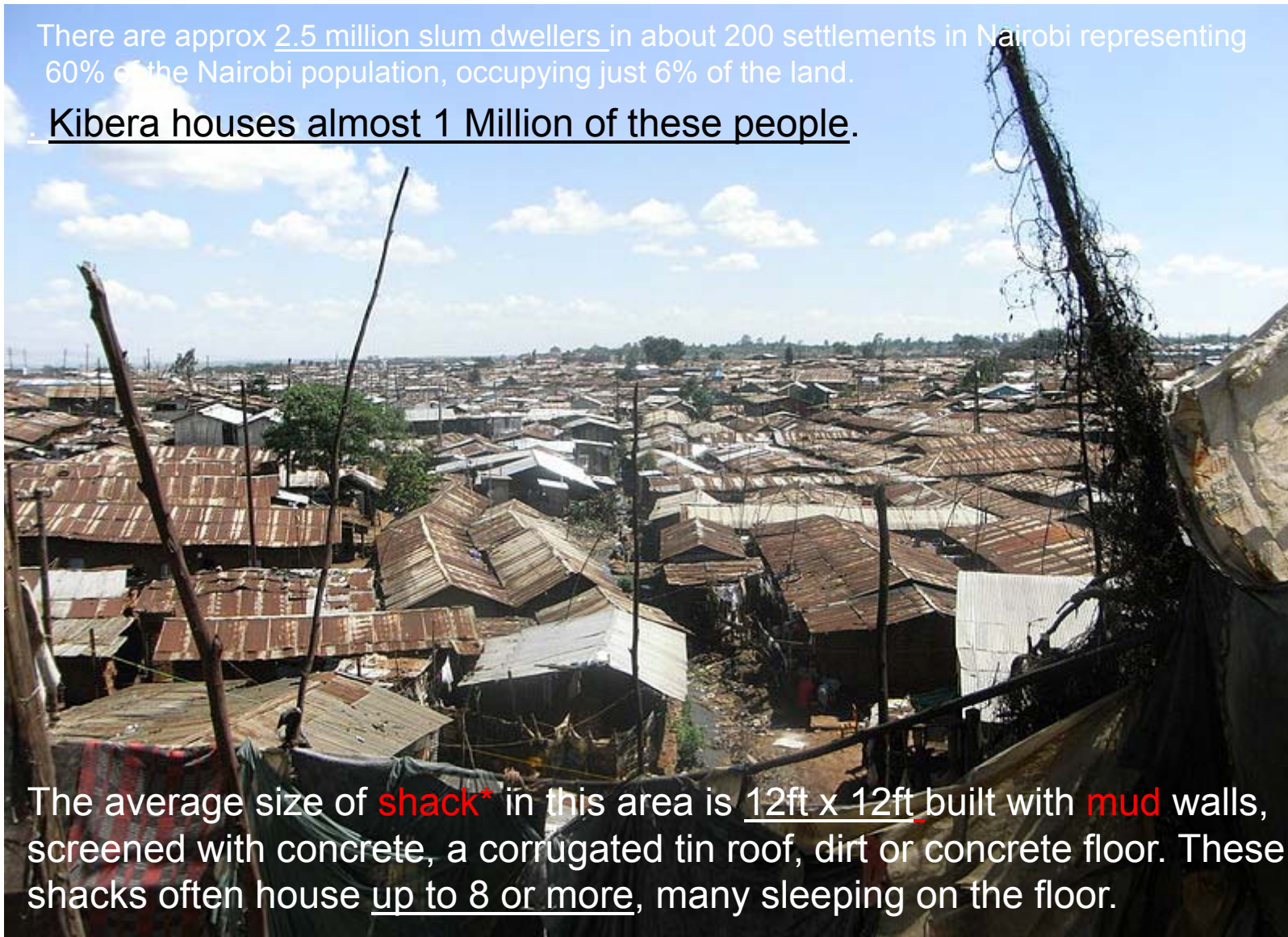




KIBERA is the biggest slum in Africa (and one of the biggest in the world).

There are approx 2.5 million slum dwellers in about 200 settlements in Nairobi representing 60% of the Nairobi population, occupying just 6% of the land.

Kibera houses almost 1 Million of these people.



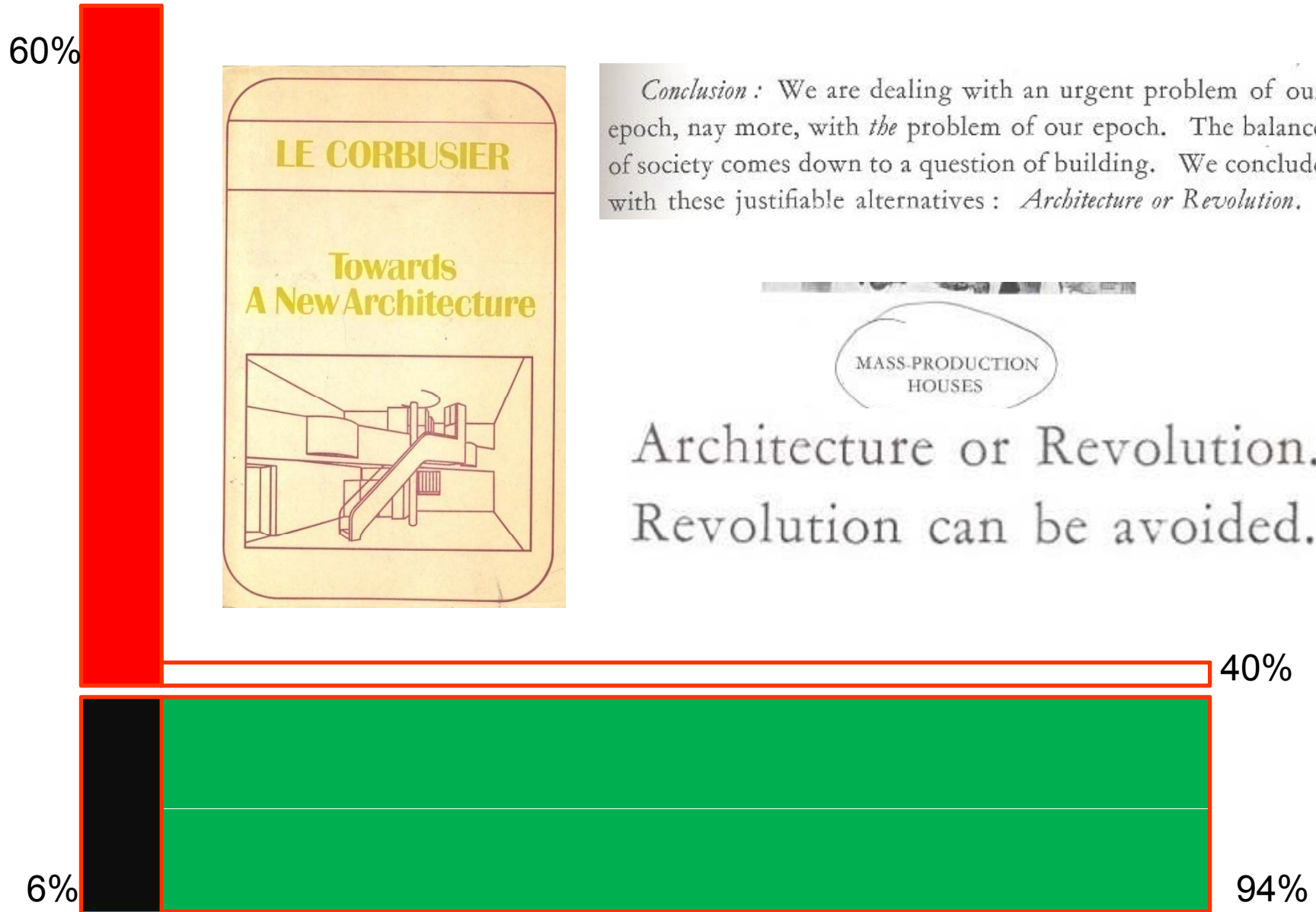
The average size of **shack*** in this area is 12ft x 12ft built with **mud** walls, screened with concrete, a corrugated tin roof, dirt or concrete floor. These shacks often house up to 8 or more, many sleeping on the floor.

**a shack is a type of small house, usually in a state of disrepair.*

$$12' \times 12' = 13 \text{ m}^2$$

NAIROBI, Kenija, Afrika

There are approx 2.5 million slum dwellers in about 200 settlements in Nairobi representing 60% of the Nairobi population, occupying just 6% of the land. Kibera houses almost 1 Million of these people. Kibera is the biggest slum in Africa and one of the biggest in the world.



1. Khayeltisha, Cape Town, South Africa

Khayeltisha's population is projected to be around 400,000, with a striking 40 percent of its residents under 19 years old. This township was developed during the collapse of apartheid system in South Africa.

2. Kibera, Nairobi, Kenya

The largest urban slum in Africa, Kibera is estimated to be housing anywhere from 200,000 to one million people. It has faced attention from news outlets, NGOs, the UN and celebrities from all across the world, but still remains overwhelmingly underdeveloped despite many rehabilitation efforts.

3. Dharavi, Mumbai, India

Also famous among journalists and development organizations, Dharavi is home to somewhere between 600,000 and one million people. Unlike most slum areas, which are concentrated on the outskirts of large cities, Dharavi is located squarely in the heart of Mumbai. This has contributed to its surprising multi-religious, multi-ethnic diversity. Fun fact: Dharavi provided the backdrop to the Oscar-winning film Slumdog Millionaire in 2008.

4. Orangi Town, Karachi, Pakistan

In recent years, Orangi has crept up in notoriety as the largest slum in Asia, compared to its long-time predecessor, Dharavi. With a population of over one million, Orangi was once the center of ethnic conflict between the Pathan and Bihari gangs. Since then, the area has become known for its self-financed sewage system and its booming cottage industry.

5. Neza-Chalco-Itza, Mexico City, Mexico

With around four million residents, **Neza-Chalco-Itza** barrio has been considered the largest slum area in the world. Unique to this area is its diversity in housing arrangements. While most residents live illegally on authorized land, some live in former mansions-turned low-income apartments that were abandoned by wealthy families.

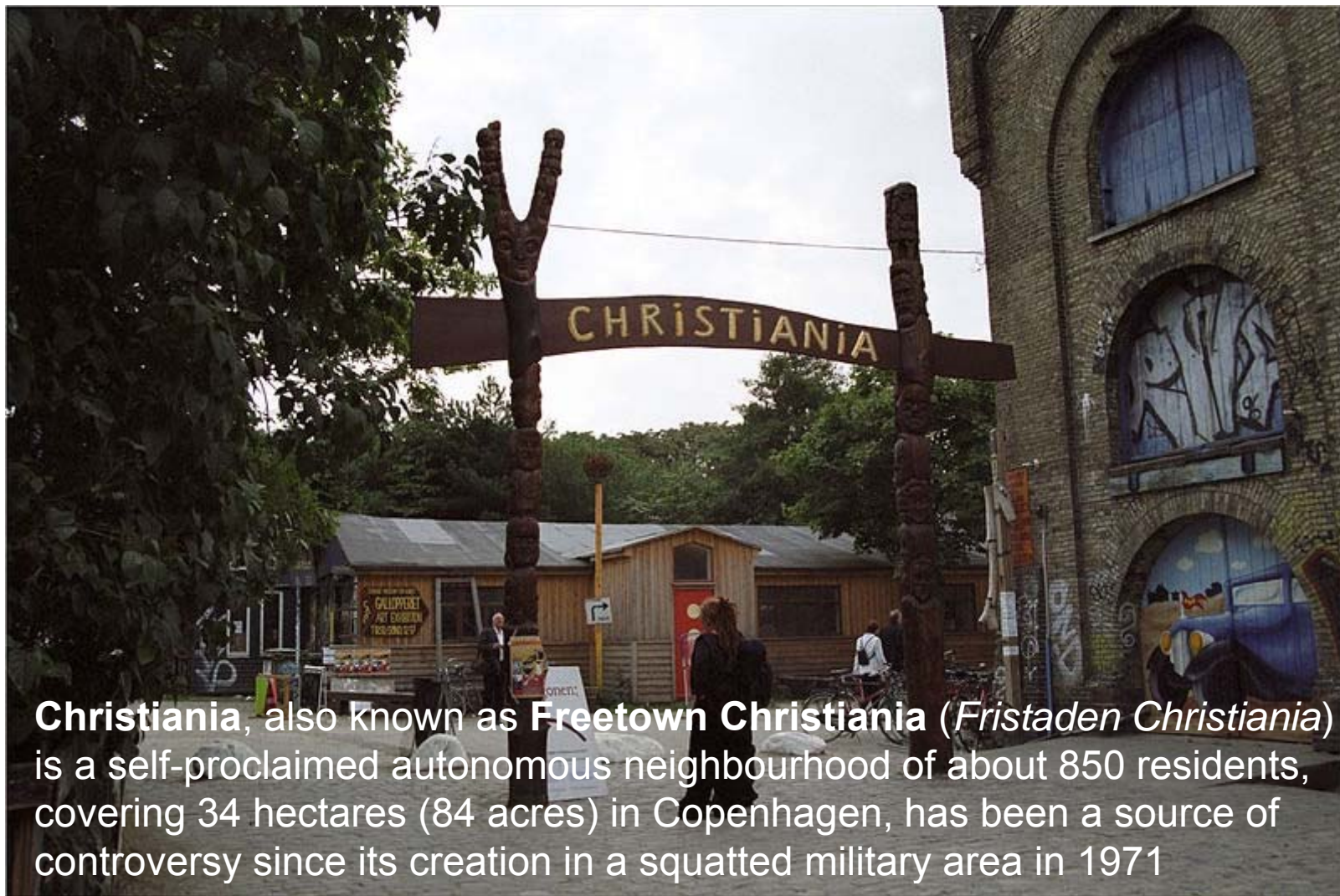
(Tara Young:5 Largest Slums in the World)

Petare, Venezuela: 600.000 -1 million people
Sadr City, Iraq: approx.2 million people

- danas u **BARRIADA**ma, **FAVELA**ma, **SLUM**ovima , **SQUATTER**ima žive milijarde ljudi



Squatter su naselja koja se razvijaju u napuštenim zgradama razvijenih zemalja ili od raznog otpadnog materijala (dasaka, kartona, lima...) koja nastaju nekontroliranom gradnjom najčešće na rubovima velikih gradova nerazvijenih zemalja, kao posljedica prevelikog doseljavanja ruralnog, niskokvalificiranog ili nekvalificiranog stanovništva u gradove, u potrazi za boljim životom.





rušenje "divlje gradnje"



Na Viru, otoku bespravne gradnje, srušeno je stotinu objekata u zaštićenom obalnom području

VIR-reVitalizirati Ili Rušiti

Hrvatska: 820.000 zahtjeva za legalizaciju!

“Sadašnjim tempom rješavanja biti će potrebno 29 godina da se sve legalizira”=?





Helsinki, 1987.



Mass Housing in Ixtapaluca, Mexico





(Francuska)





urban sprawl- Florida

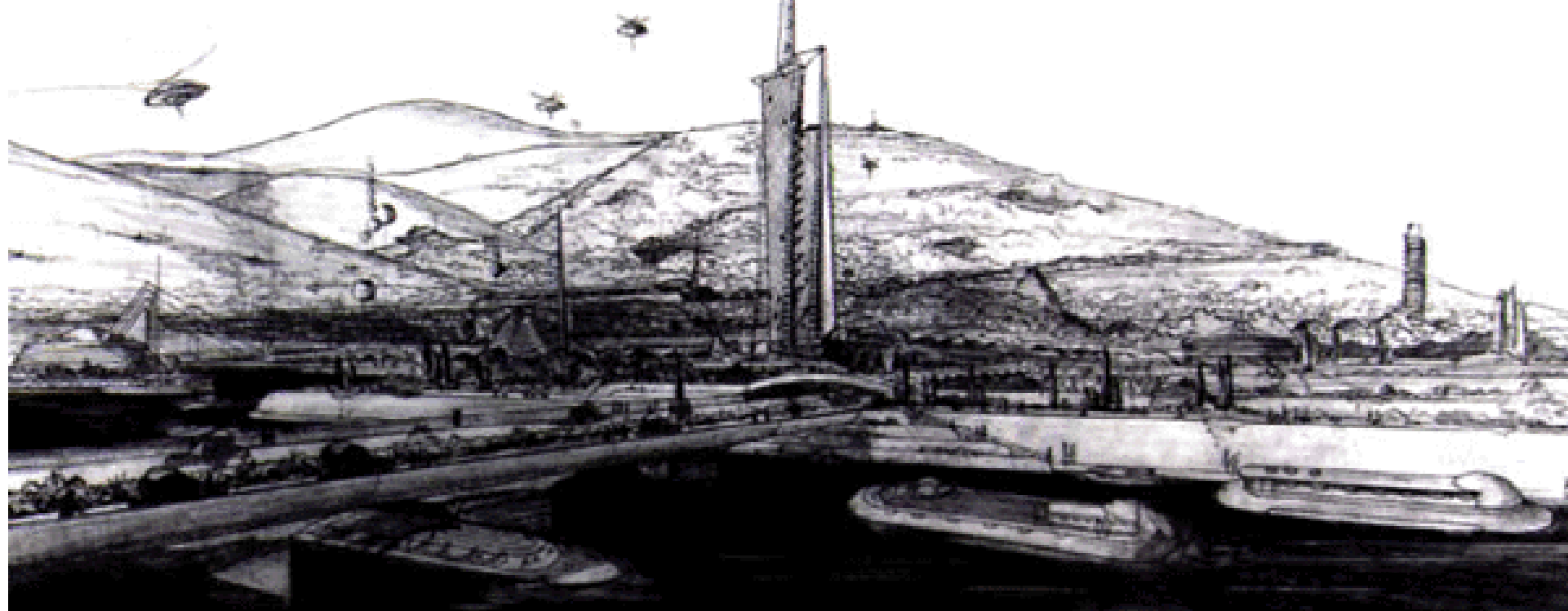


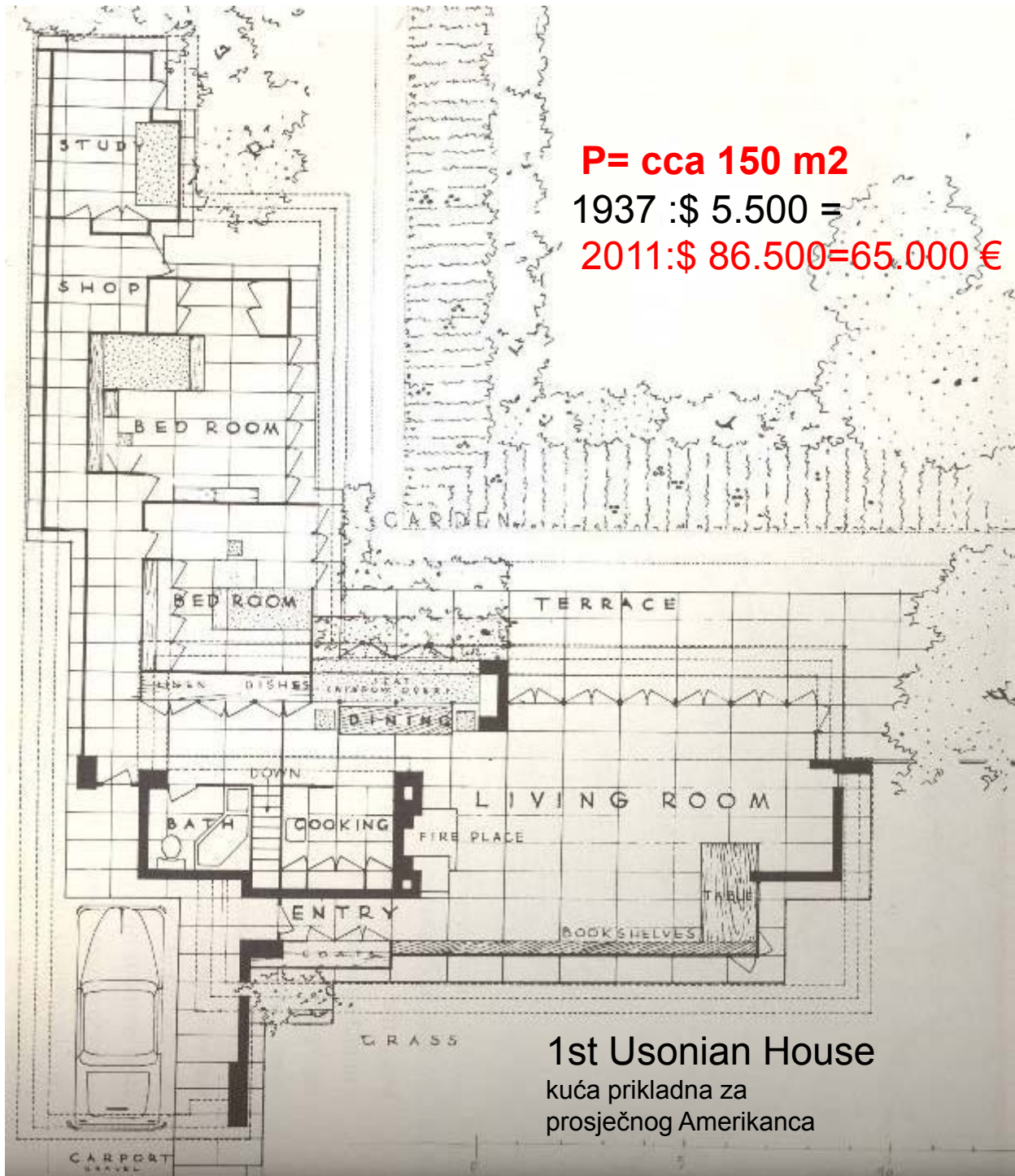
urban sprawl- Nevada

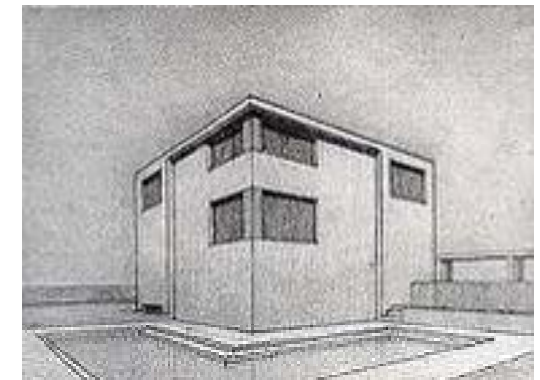
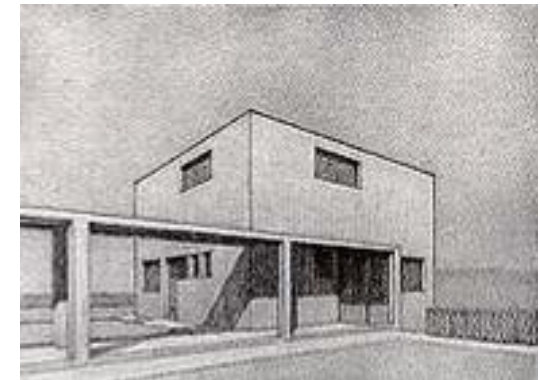
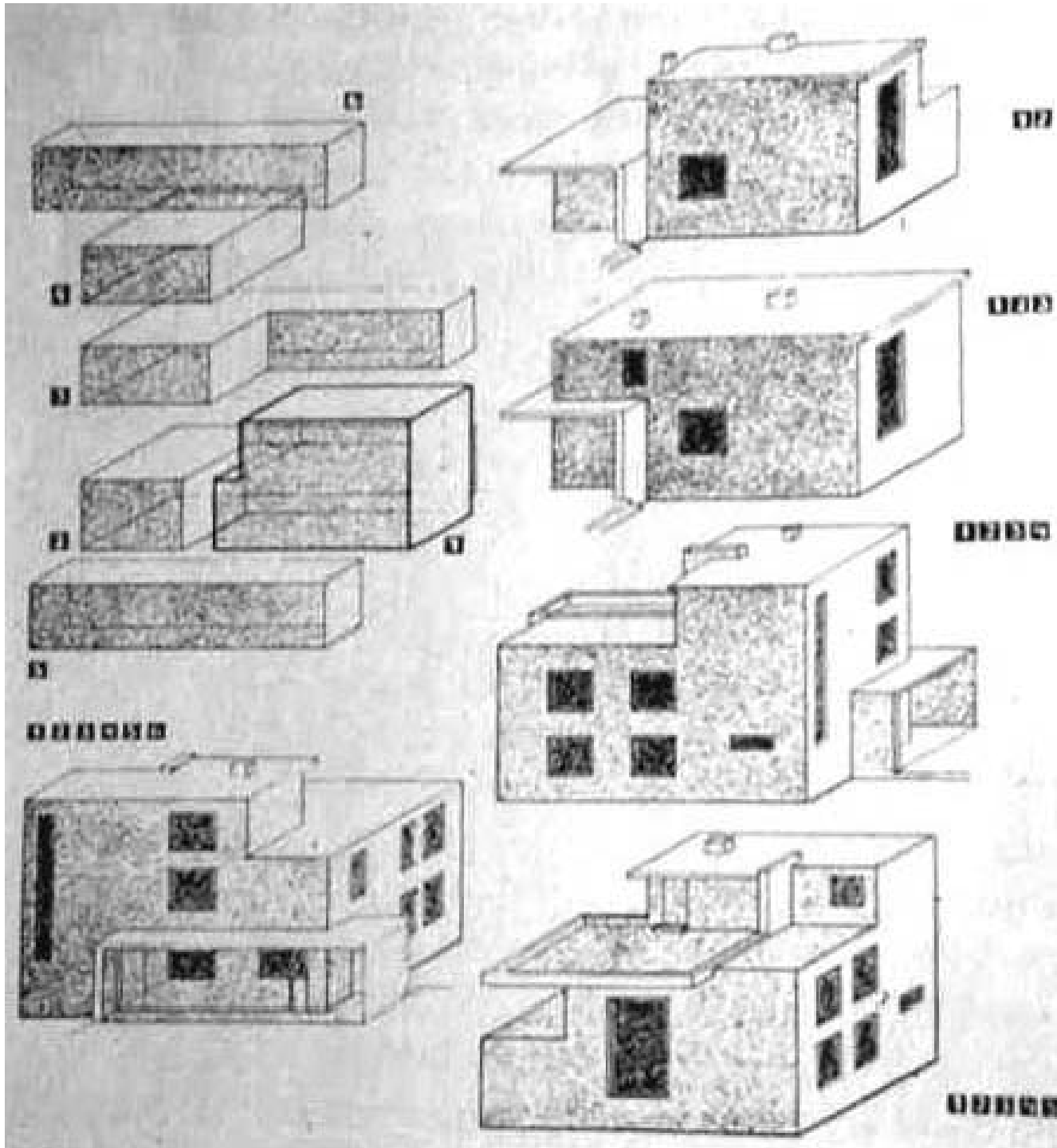


USONIA

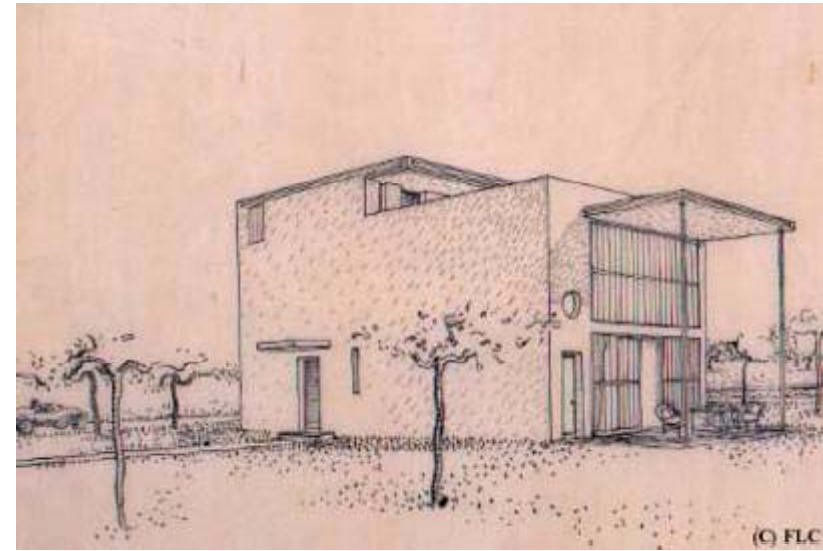
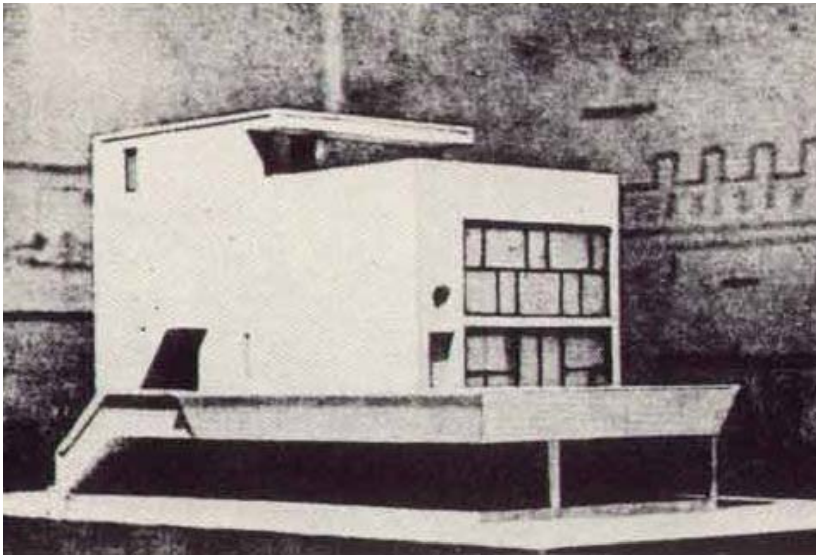
FRANK LLOYD WRIGHT'S VISION FOR AMERICA





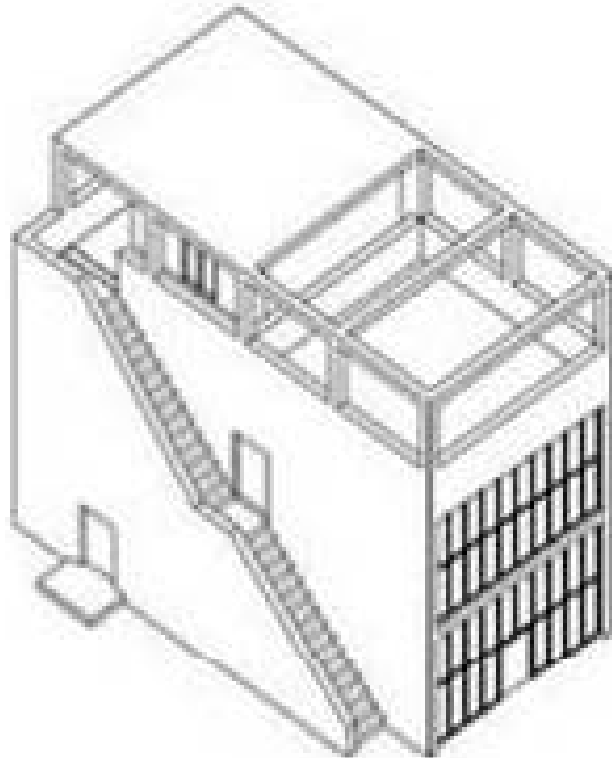
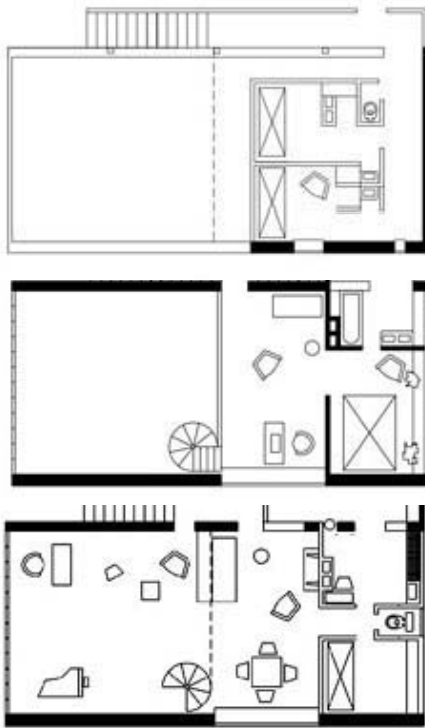


W. Gropius & A. Meyer:
1922-3?
Mass-production housing
“large scale building bricks”

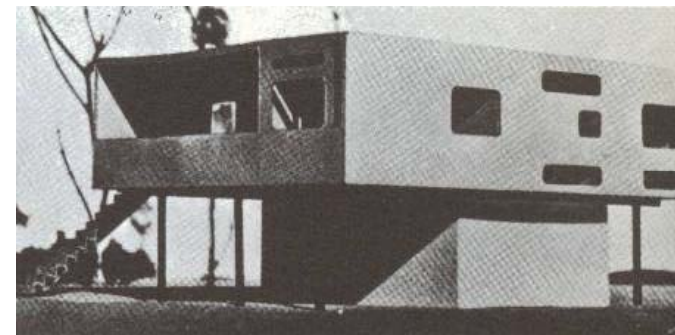


Le Corbusier: "Citrohan" 1921.

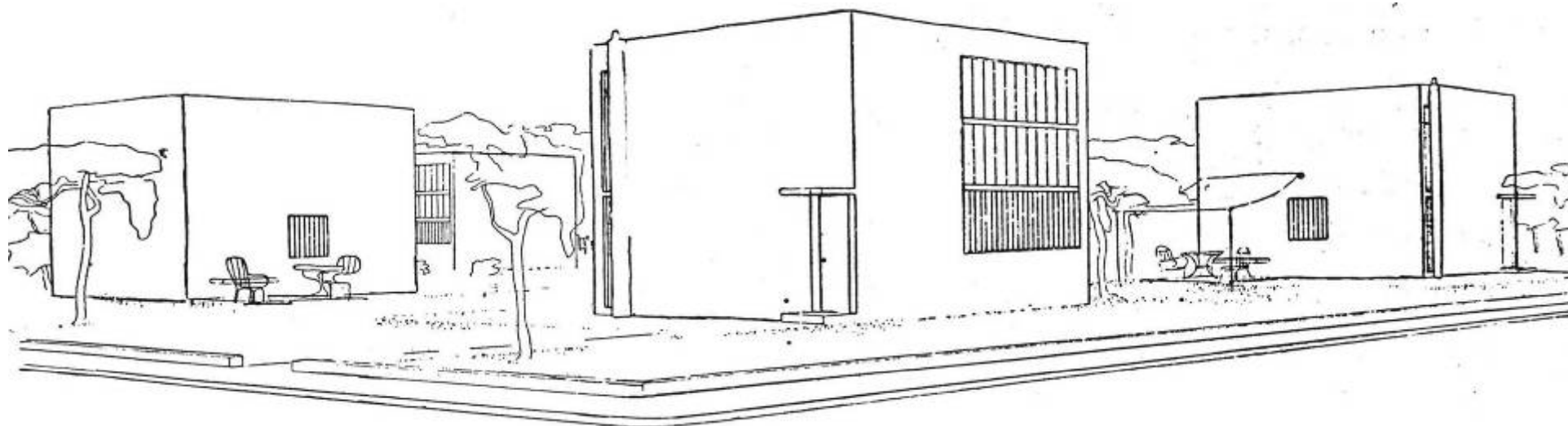
P= cca 100 – (150) m²= ?



Le Corbusier: Citrohan House (kuća za masovnu produkciju)

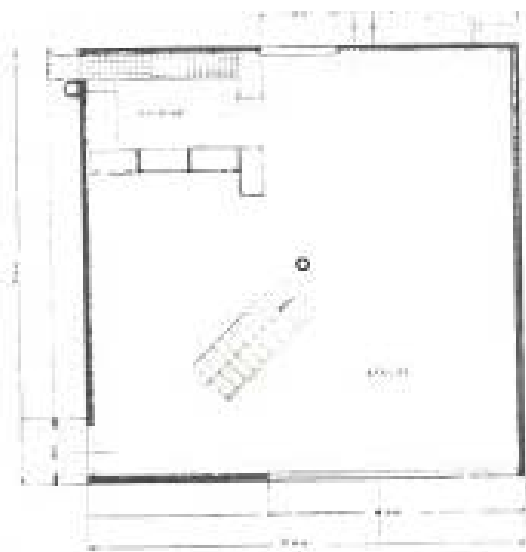


Le Corbusier: Maison Rurales, "metalna kuća" 1952-57.

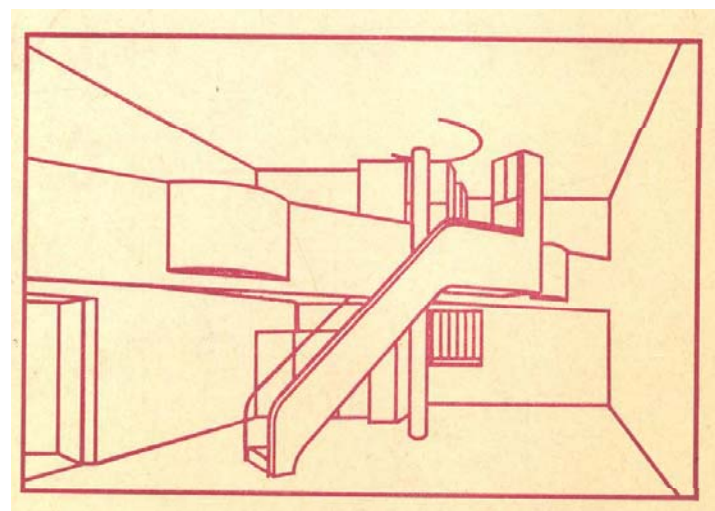


Les maisons en série pour artisans

LeC: "it is criminal to make W.C.'s 36 feet square (3.3 m²) !



P= cca 80 m²



Le Corbusier: kuće za umjetnike, 1924.

Levittown, Long Island, New York, 1947-1951



36 houses a day

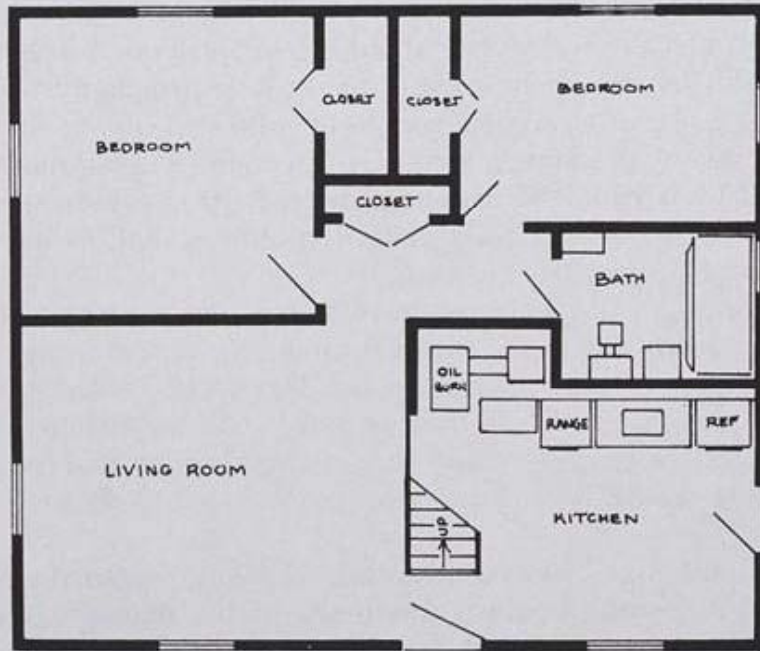


17,450-nearly identical 800-square-foot houses.



cca 75 m2

a)



(b)



As the first and one of the largest mass-produced suburbs, Levittown quickly became a symbol of postwar suburbia

Only Members of the Caucasian Race

One of the important features of the Building Regulations at Highland Park reads as follows:

"The buyer agrees that no estate in or possession of the said premises shall be sold, transferred or conveyed to any person not of the Caucasian race."

This means that when you buy a home site in this properly Regulated home place, you will forever be assured of desirable neighbors. Only members of the white race can buy or hold property in this beautiful restricted residential park.

Another provision specifies that only dwelling houses are permitted, and here must cost at least a definite amount.

Good neighbors, beautiful surroundings, uniform improvements and a large enough acreage for residential zone, to make Building Regulations effective, are only a few of the many advantages of Highland Park.

This handsome park, with 312 acres, is the largest restricted home district in Utah. Because of its far-sighted regulations, all property will become more beautiful and more valuable each year.

Go in our auto and investigate for yourself the many advantages of locating in a regulated home district.

Phone—Wantsch 963.

Kimball & Richards
"Land Merchants"
84 Main Street,
Salt Lake City.

[Levittown, New York](#) —
The first Levittown
[Levittown, Pennsylvania](#)
[Willingboro Township, New Jersey](#) —
Coloquially known as Levittown
[Levittown, Puerto Rico](#)



With Levittown, Pa., in background, Don and Jane weigh advantages of mass-built home

Any reliable architect or builder will tell you that if the mass-produced house meets your needs you can get

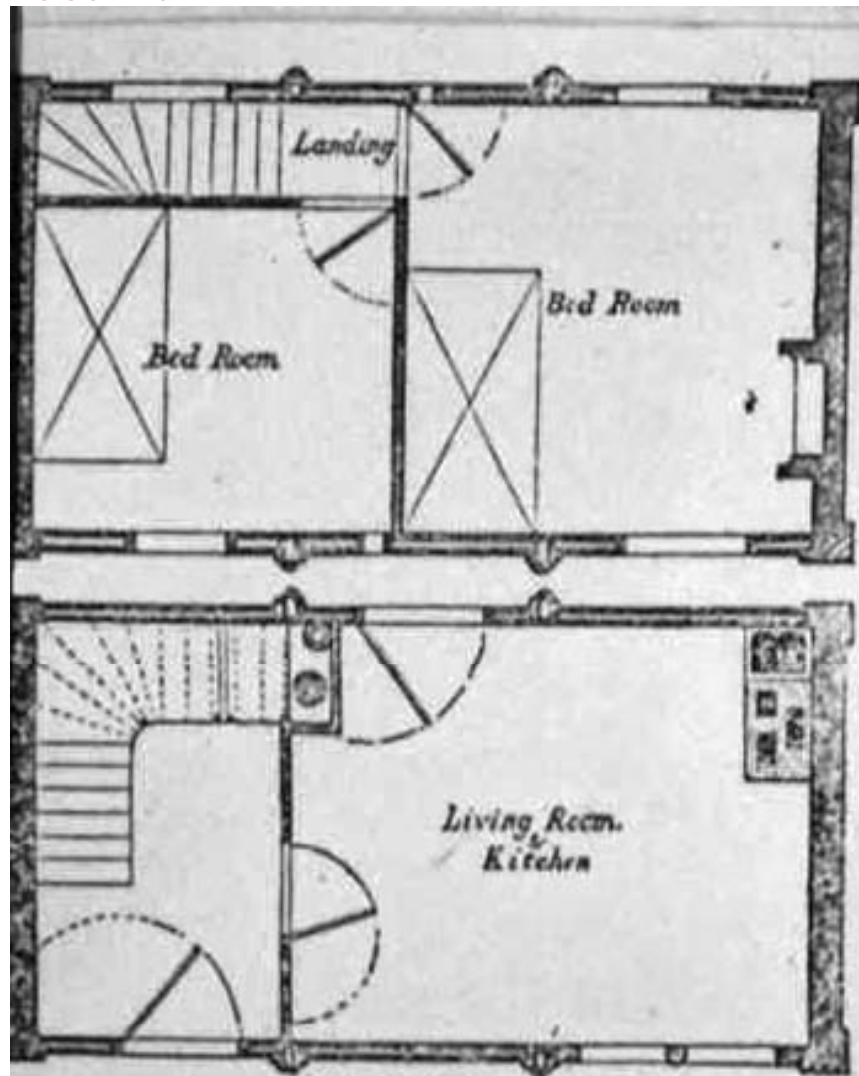
More House for Less Money

By Richard F. Dempewolff

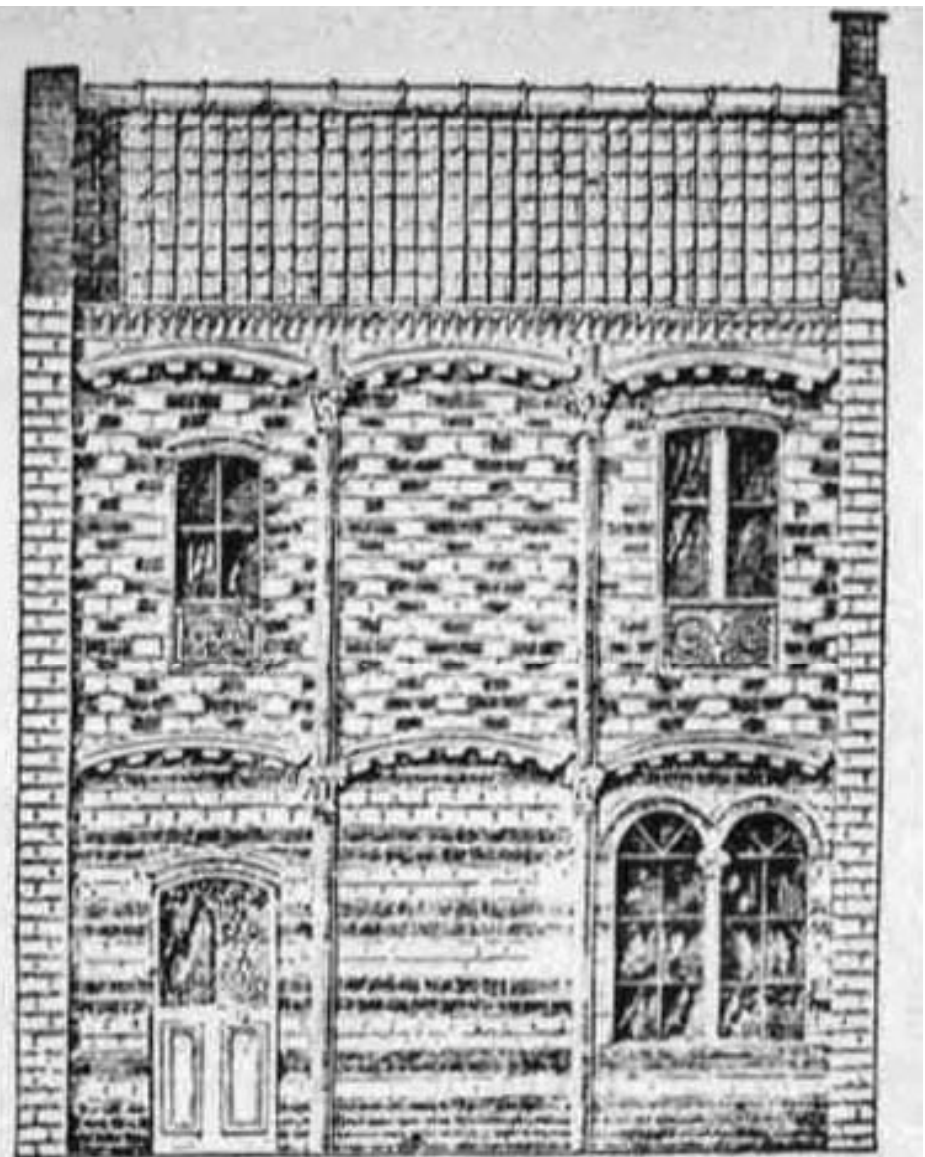


California '50s

cca 40 m²



GROUND FLOOR
PLANS OF A 3000-FRANC HOUSE.
PLANS OF THE SAME BUILDING



ELEVATION OF A 3000-FRANC HOUSE.
ELEVATION OF IRON-FRAME HOUSE WITH HOLLOW-
BRICK WALLS, EXHIBITED IN THE PARIS EXHIBITION

Prototip kuće za masovnu proizvodnju – French Industrial Exhibition 1844.



HOUSE DURING TRANSPORTATION.

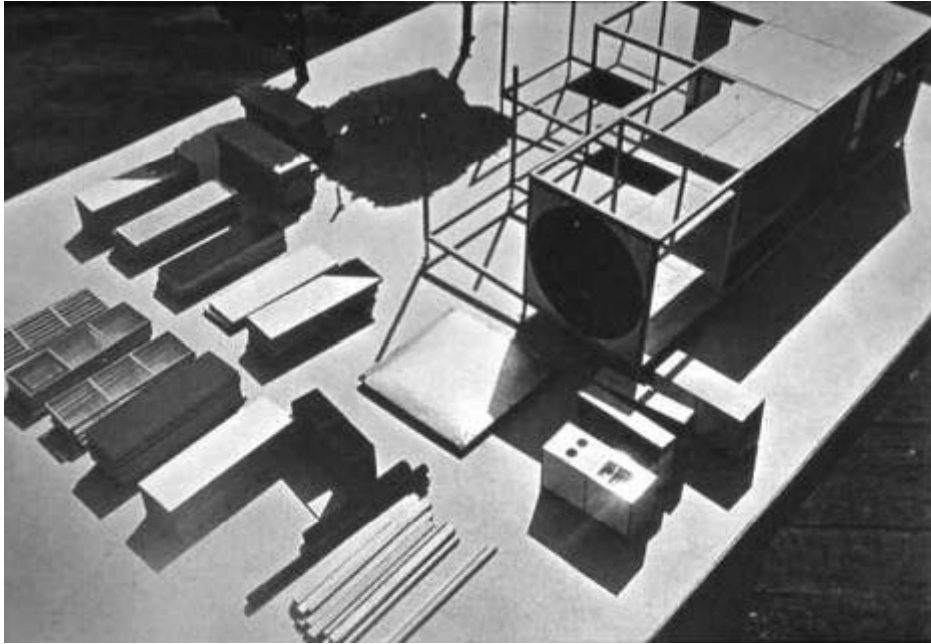
$\text{cijena} = f(\text{broj jedinica}, \text{udaljenost/transport})$

veći broj smanjuje cijenu – veća udaljenost povećava cijenu



Exterior wall assemblies being set in place during manufacture





Suomi=Finland

Modul-stup/greda-kocka=225 cm



K.Gullichsen&J.Pallasmaa:Holiday House System "MODULI", 1969.

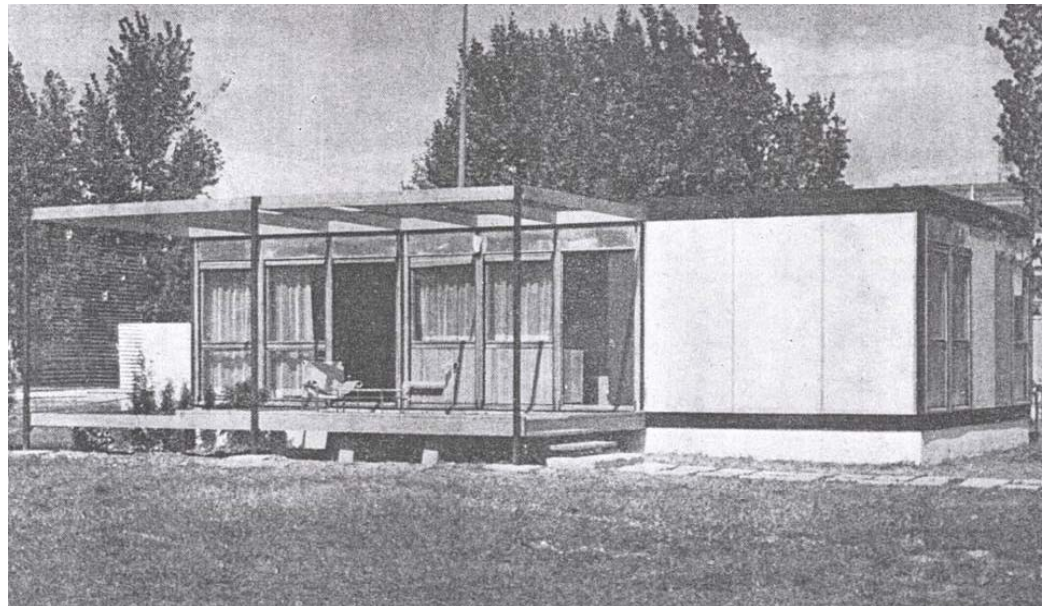
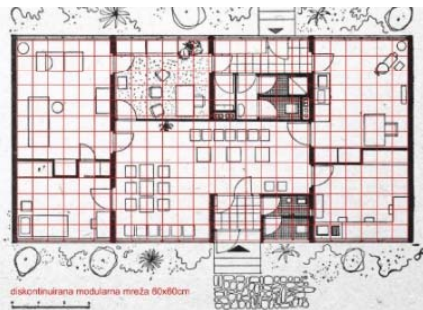
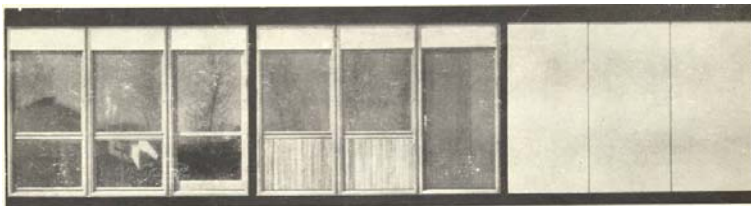
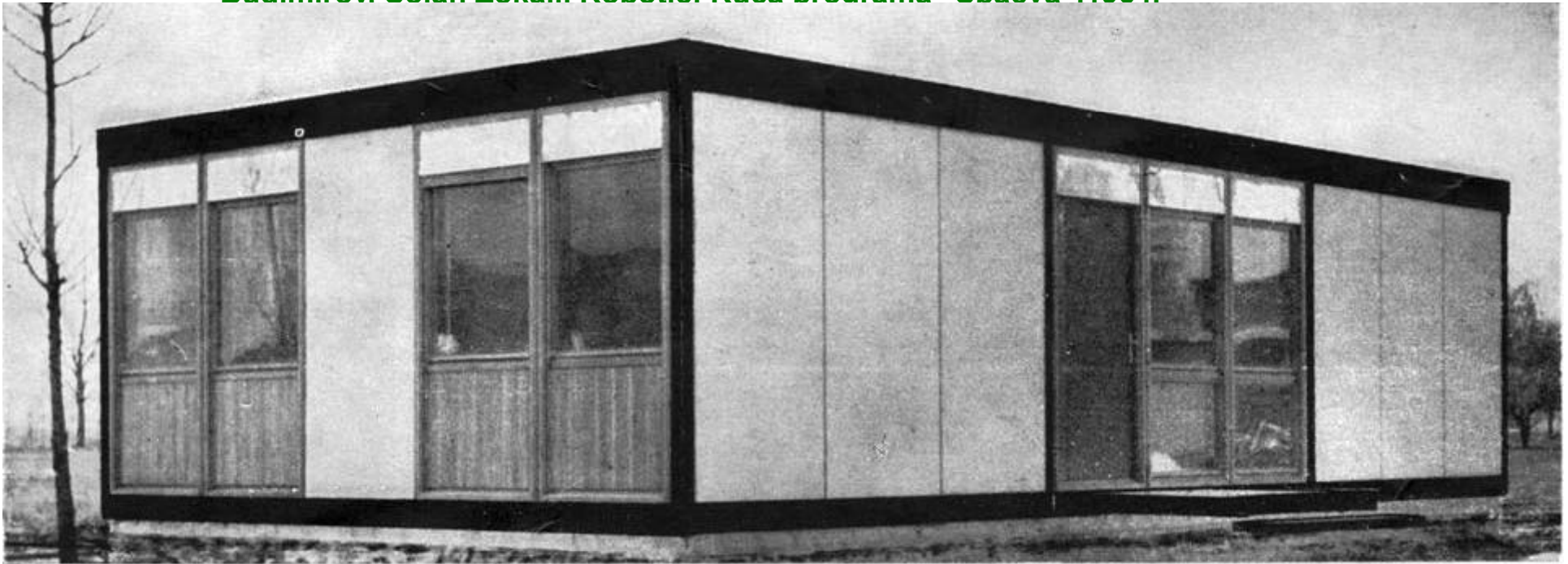


240x480 cm
(11,5 m²)



R.Kallio-Manila & T.Koivu: "DOMINO" System, 1964.

Budimirov. Solar. Žokali. Robotić: Kuća programa "Spačva". 1964.



360

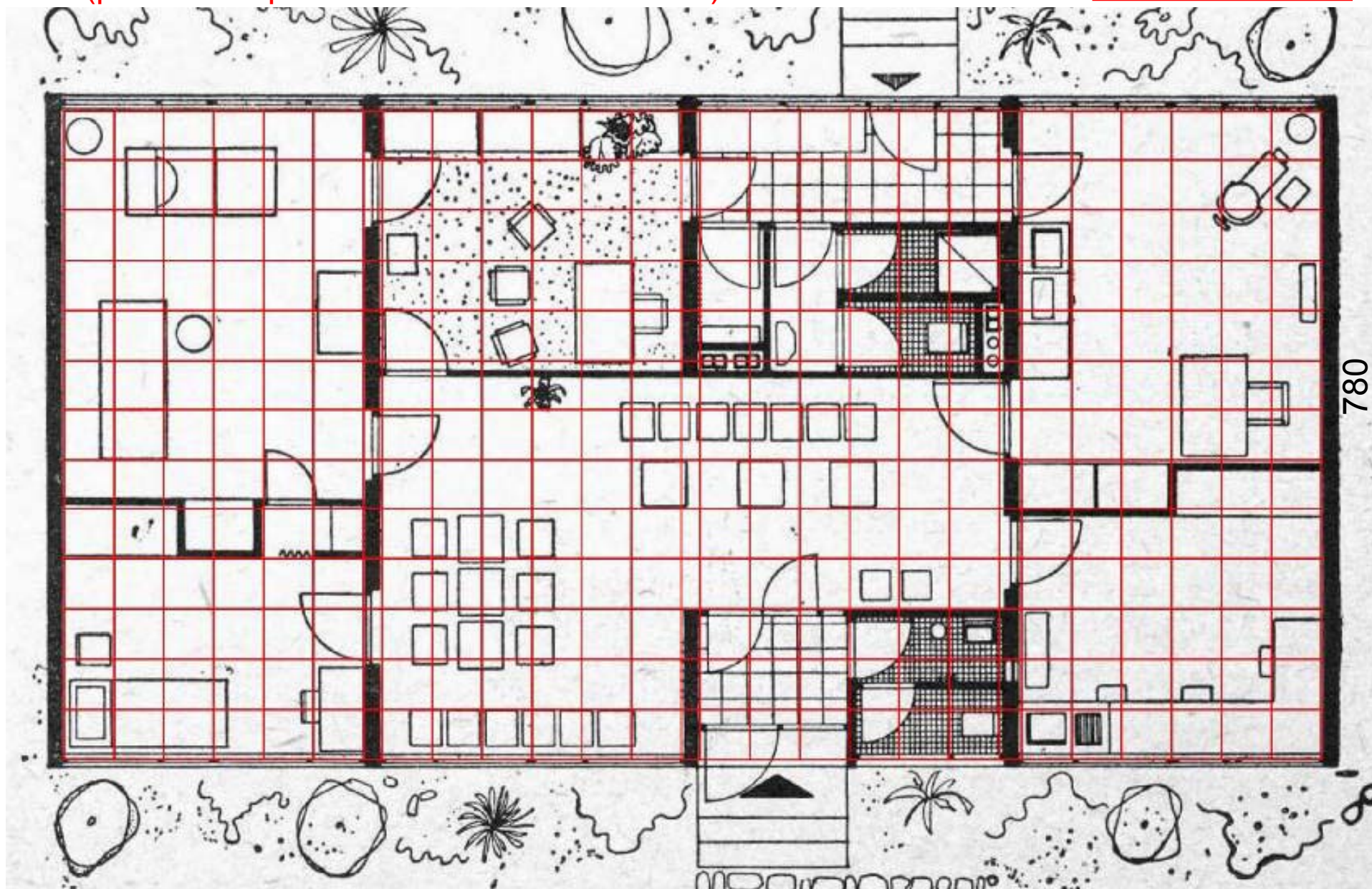
360

360

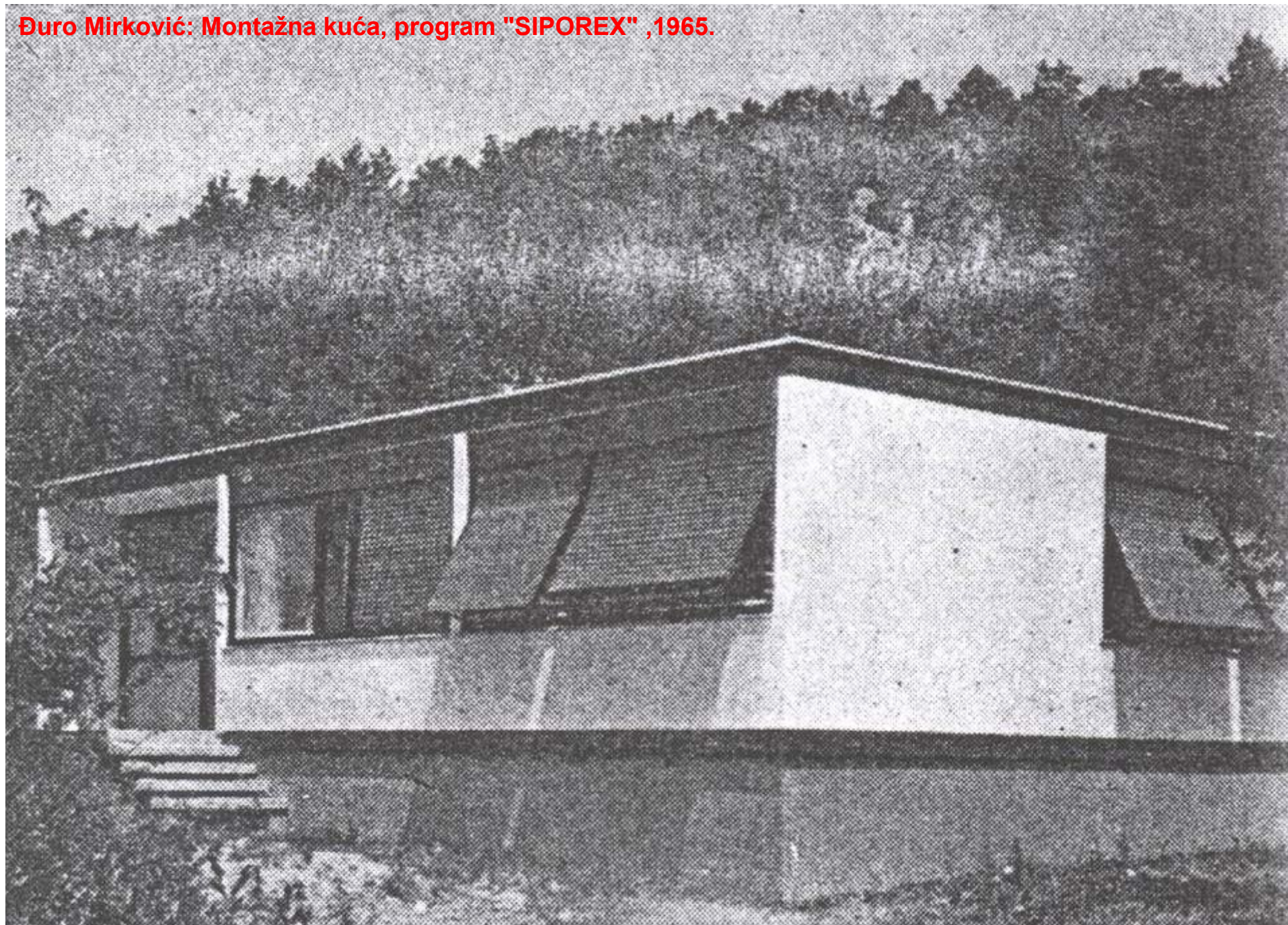
360

(prerađeni i prefabricirani drveni elementi)

P=cca 112 m²



Đuro Mirković: Montažna kuća, program "SIPOREX" ,1965.



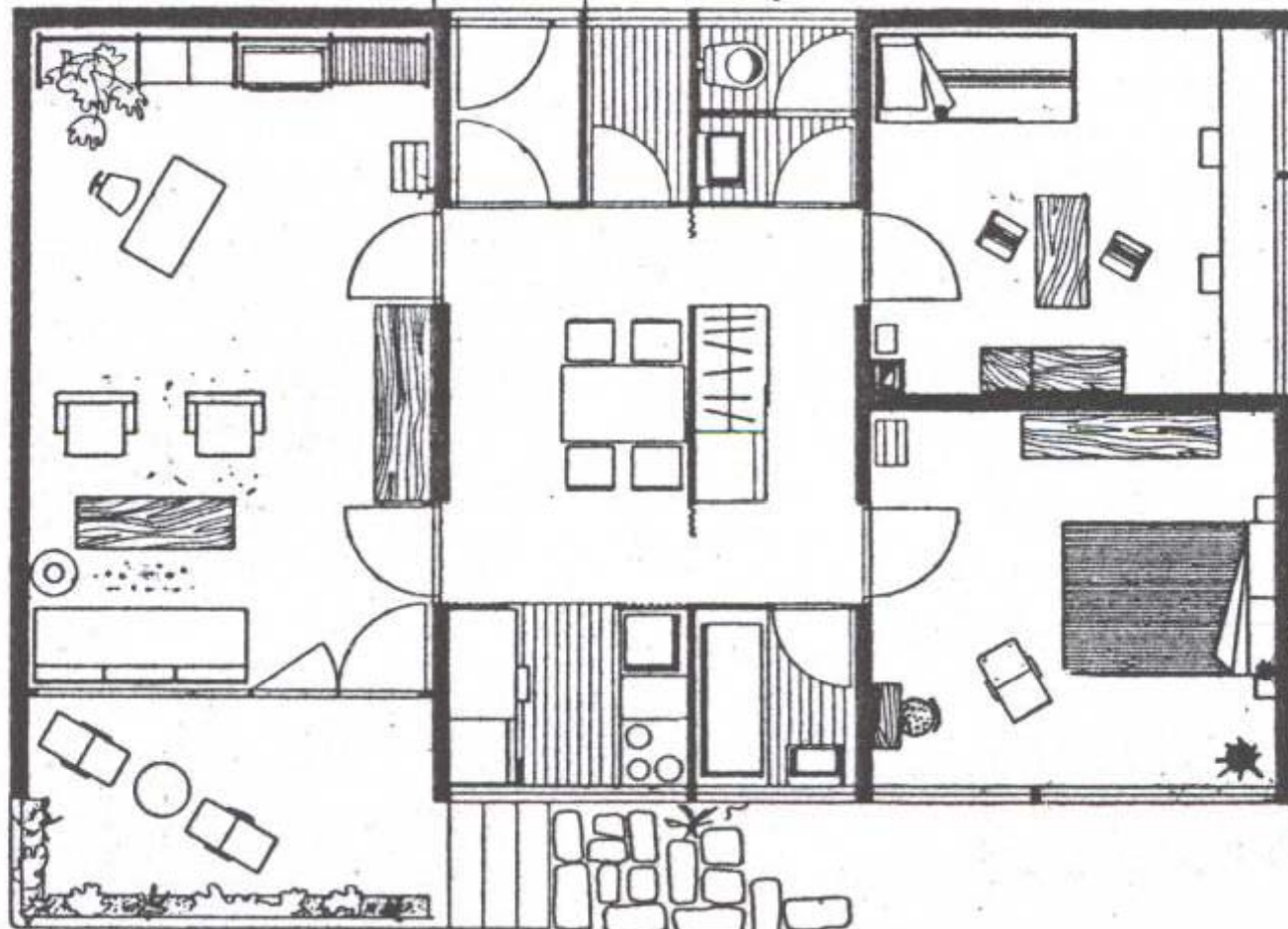


Đuro Mirković: Montažna kuća, program "SIPOREX" ,1965.

(plinobeton,porobeton)



P=cca 75 m2



3.6

3.6

3.6

3.6

3.6

2m



1990te



123 m²



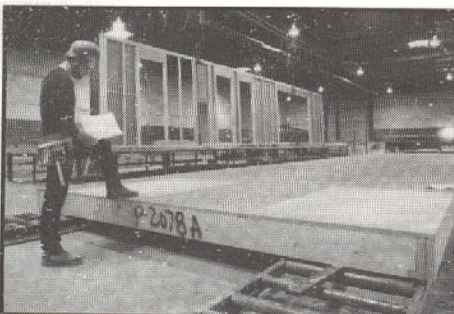
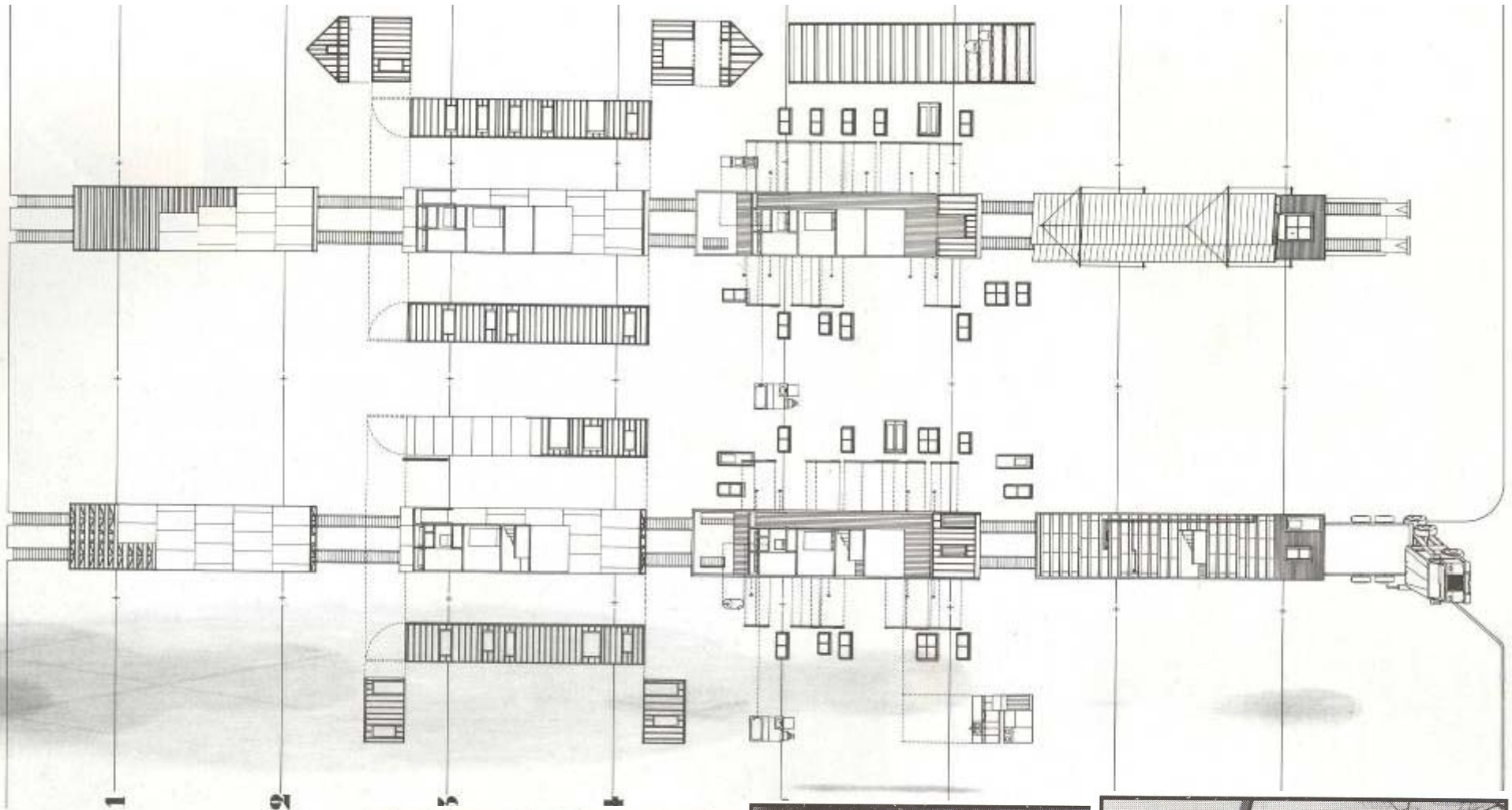
Prof:Lj.Miščević:
NISKOENERGETSKA YTONG KUĆA(projekt),2005.



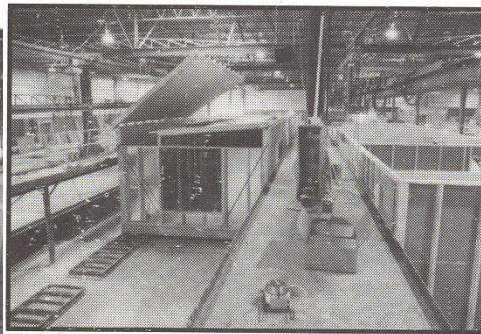
Naselje Novi Retkovec , arhitekti Ante Glunčić i Bogdan Budimirov, napravljeno nakon velike poplave 1964. godine, a čine ga montažne kuće u 13 različitih tipova i različitih kvaliteta materijala, pretežno drvenih, lakih montažnih elemenata, čiji je vijek trajanja vrlo kratak, otprilike 15 godina.



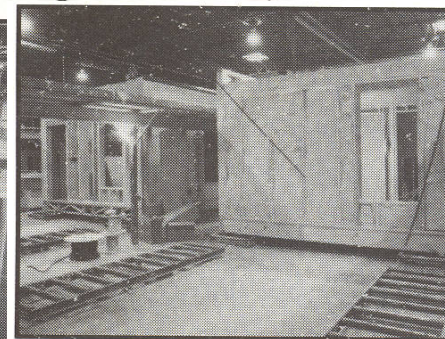
Abacus Architects: Affordable house, 1992.



Walls are built on side tables and set into place with cranes.



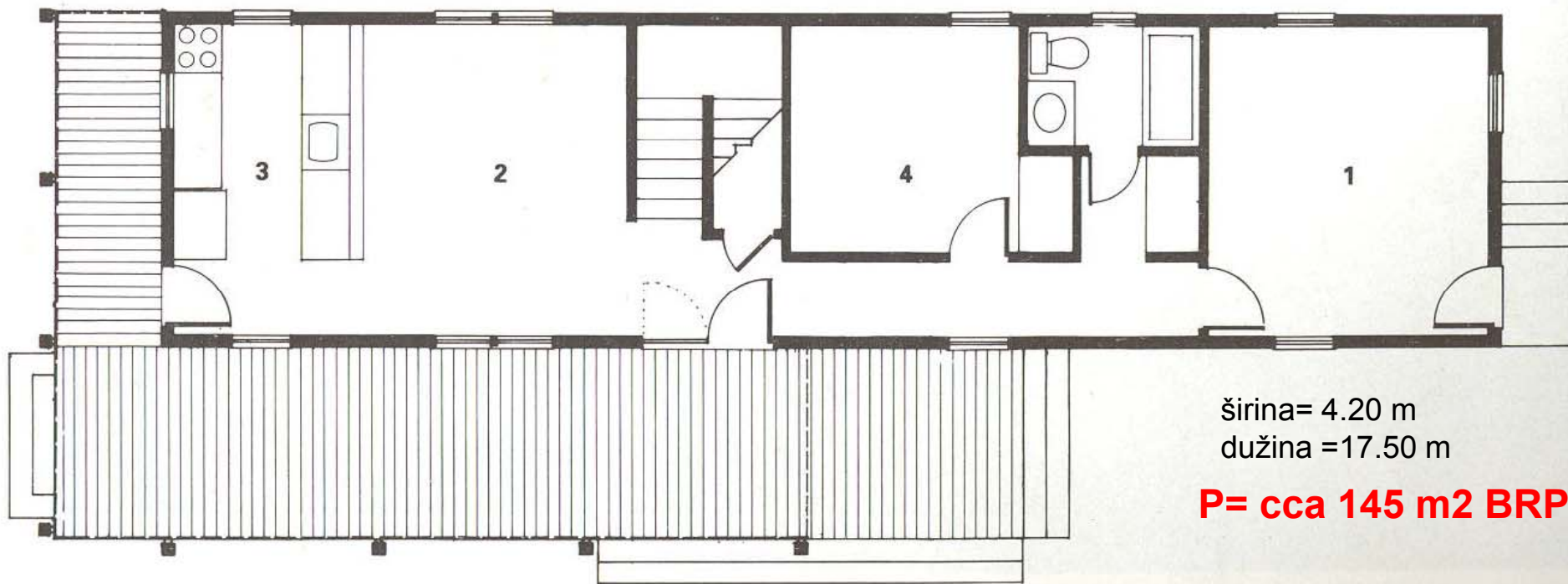
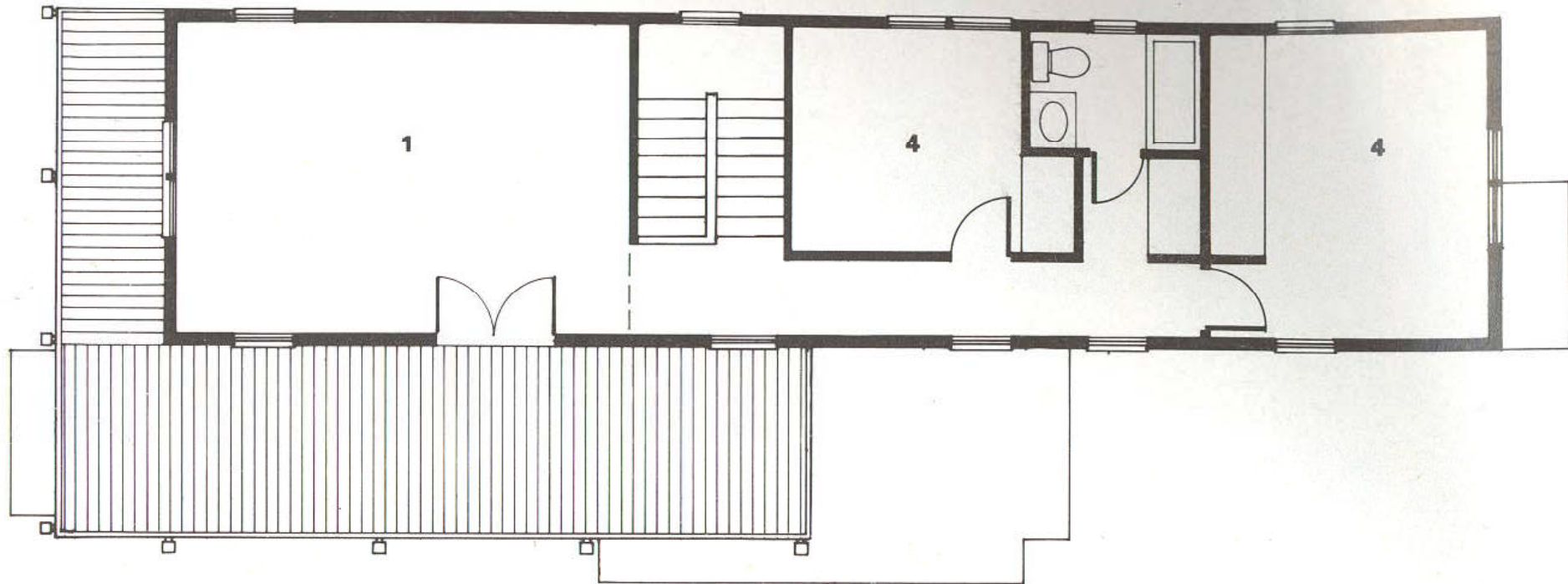
Hinged roof installed then folded down to allow transport.



Walls are wired, plumbed and insulated from the outside.

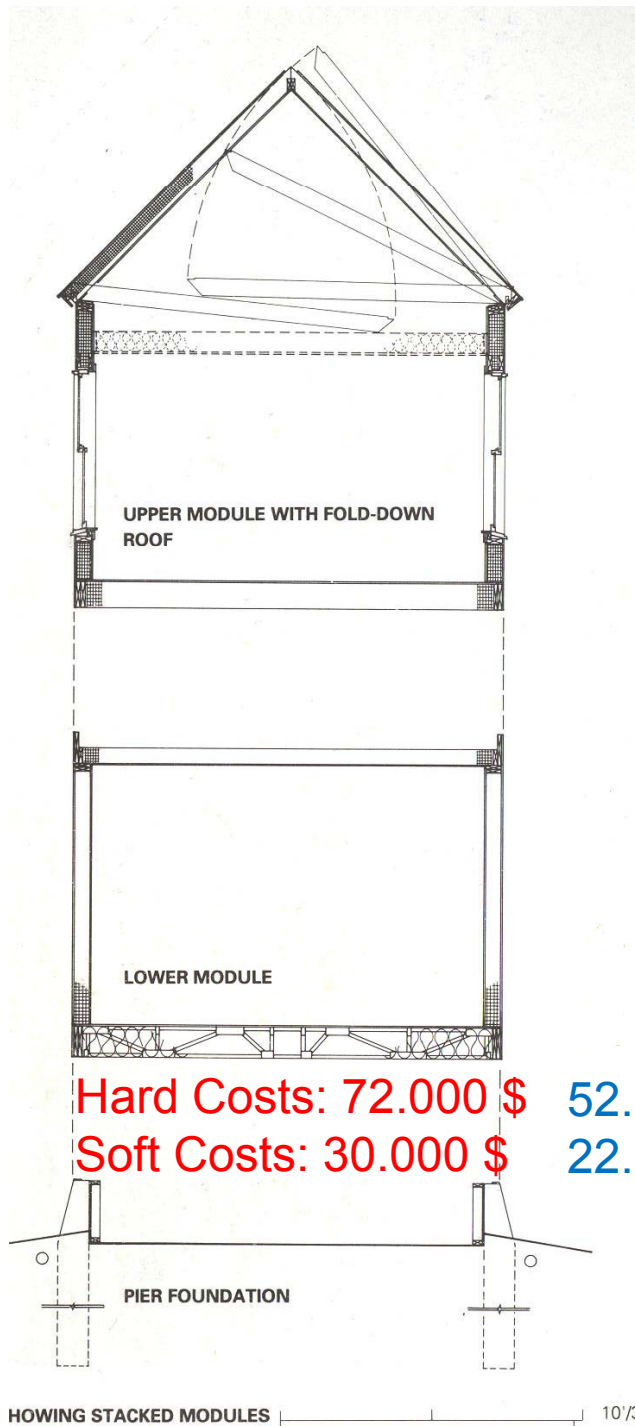


Modules are set on the foundation with a crane in one day.

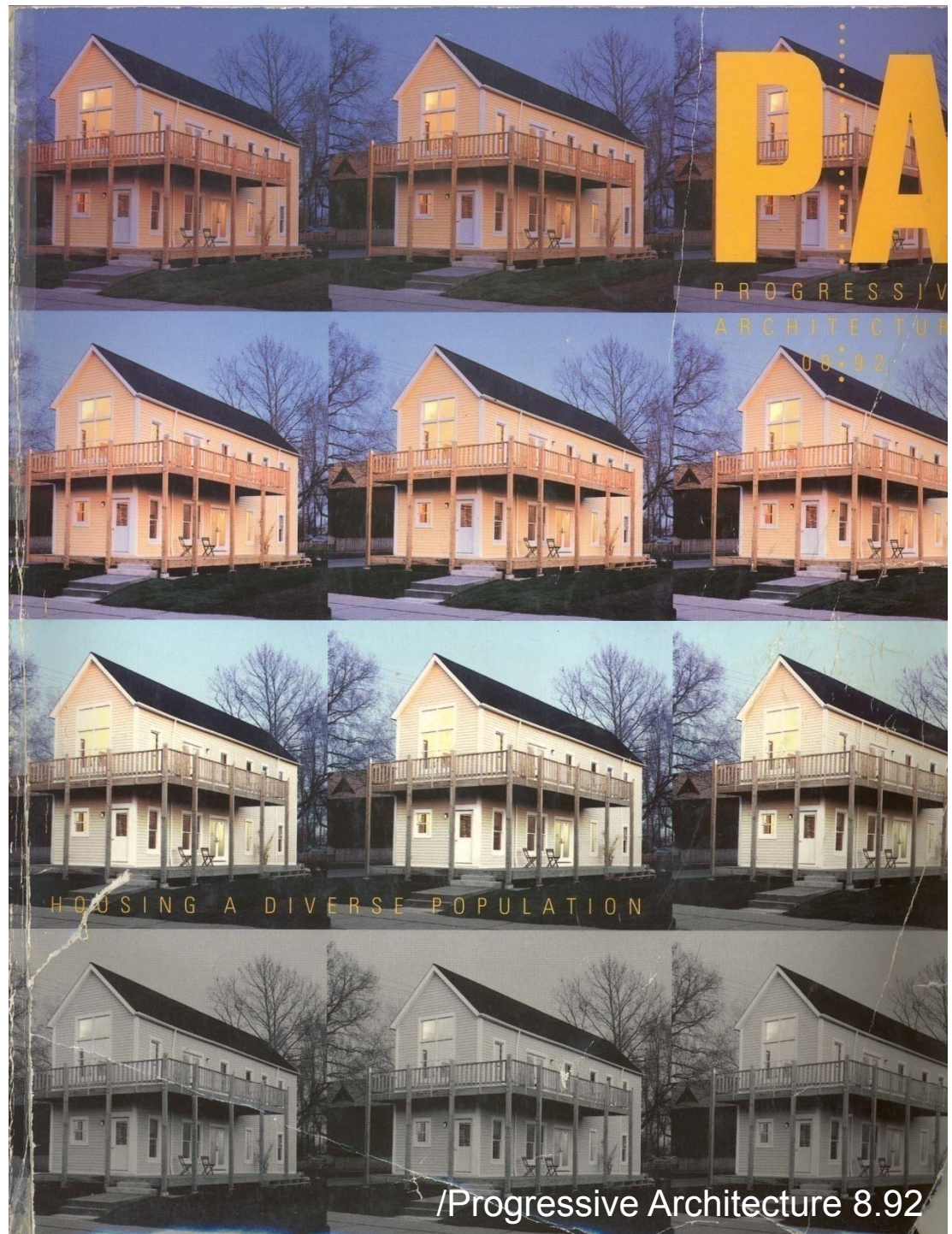


šírina= 4.20 m
dužina =17.50 m

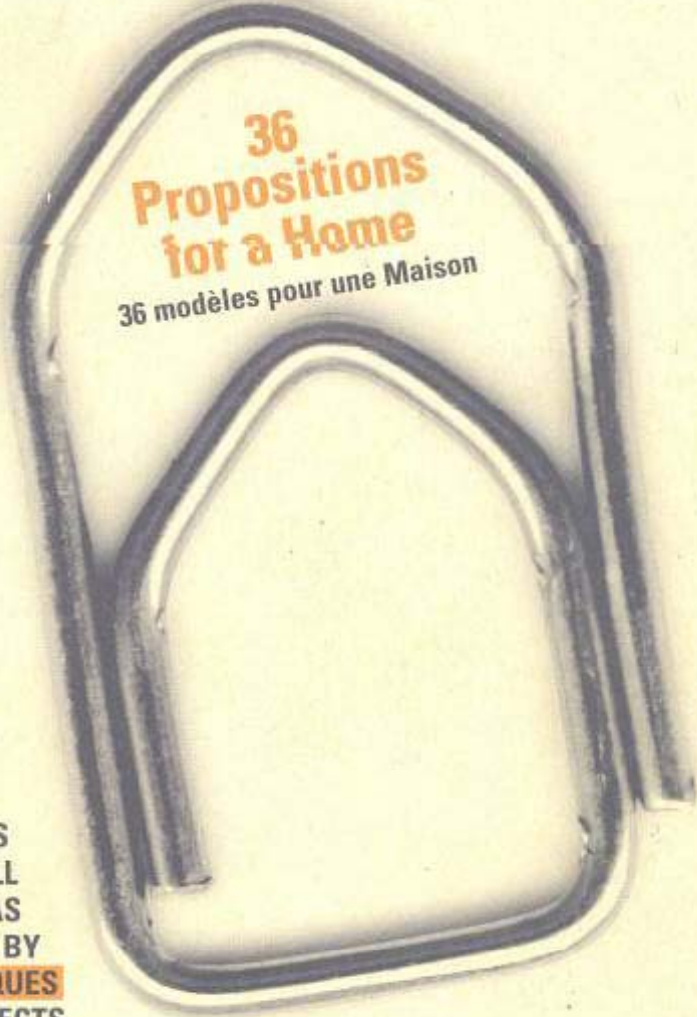
P= cca 145 m2 BRP



Hard Costs: 72.000 \$ 52.500€
 Soft Costs: 30.000 \$ 22.000€



Hannes Meyer:
ARHITEKTURA = FUNKCIJA X EKONOMIJA

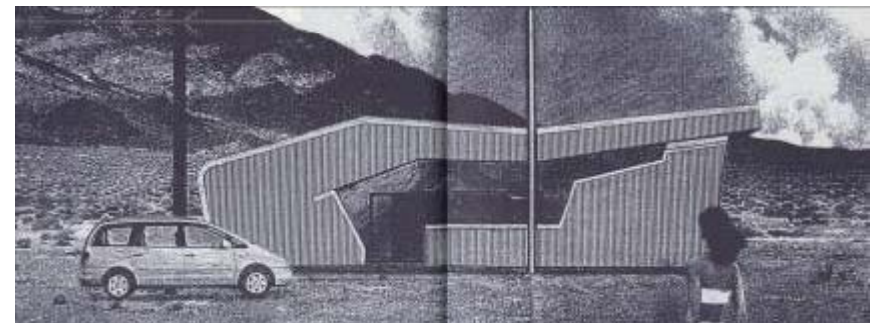
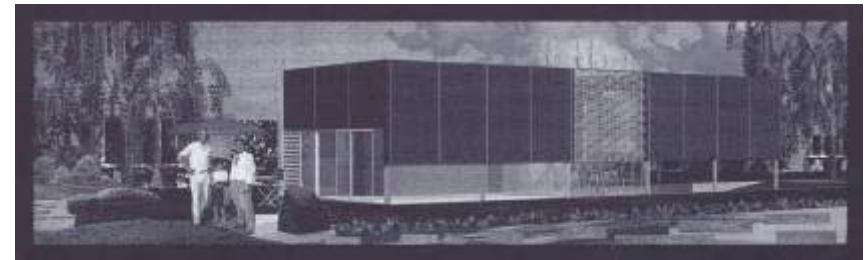
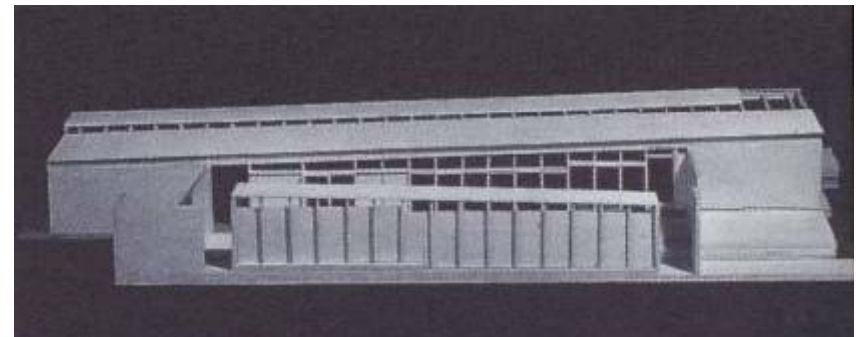


36
Propositions
for a Home
36 modèles pour une Maison

1998:
RESULTS
OF A CALL
FOR IDEAS
INITIATED BY
PERIPHERIQUES
FOR ARCHITECTS
TO DESIGN
A HOUSE
FOR UNDER
499.900 FF
80.000 US\$ *≈ 18.000 €*
ALL INCLUDED

68.000€

PERIPHERIQUES/BIRKHÄUSER







THINKSTOCK

Mobile homes make up 6.4% of the US housing sector and there are **8.500.000** of them, The number of occupants is estimated to total about 20 millions- (2011.)

1970s: 20% US inhabitants lived in trailers

US population (December 12, 2013) **317,247,000**

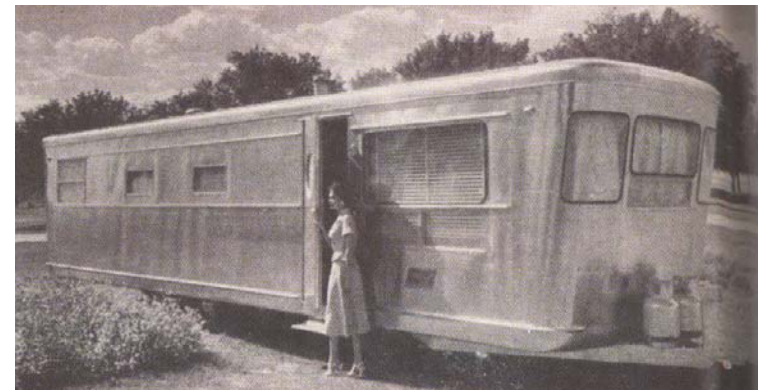
trailer *= mobile home*

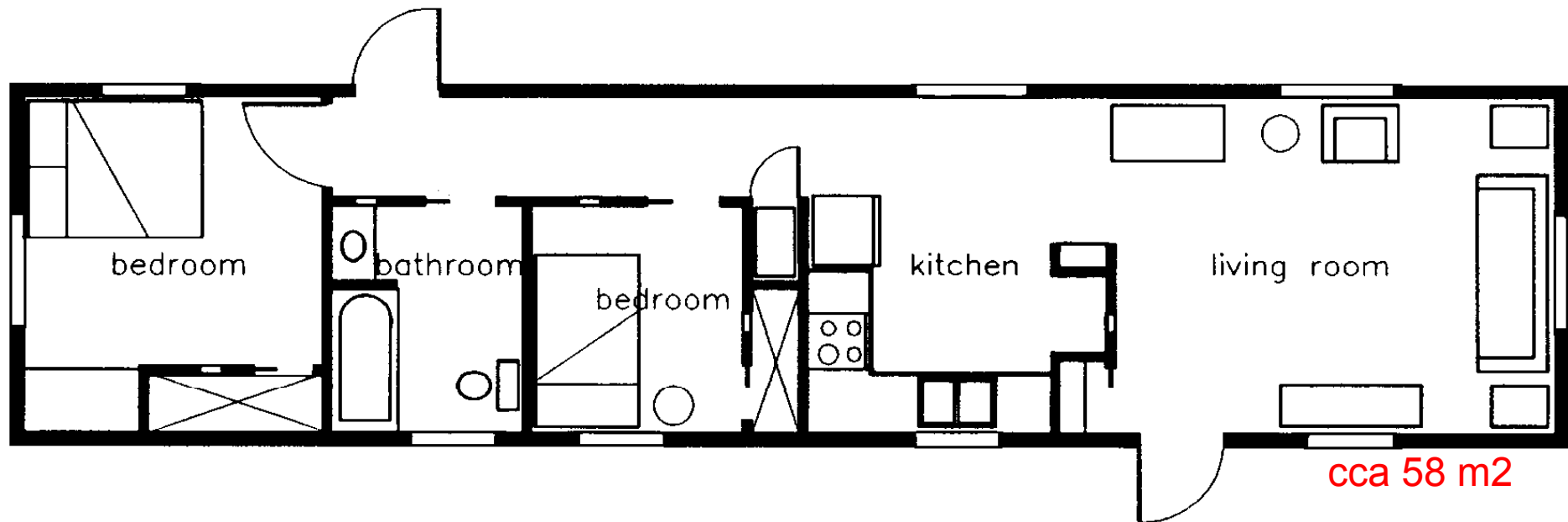
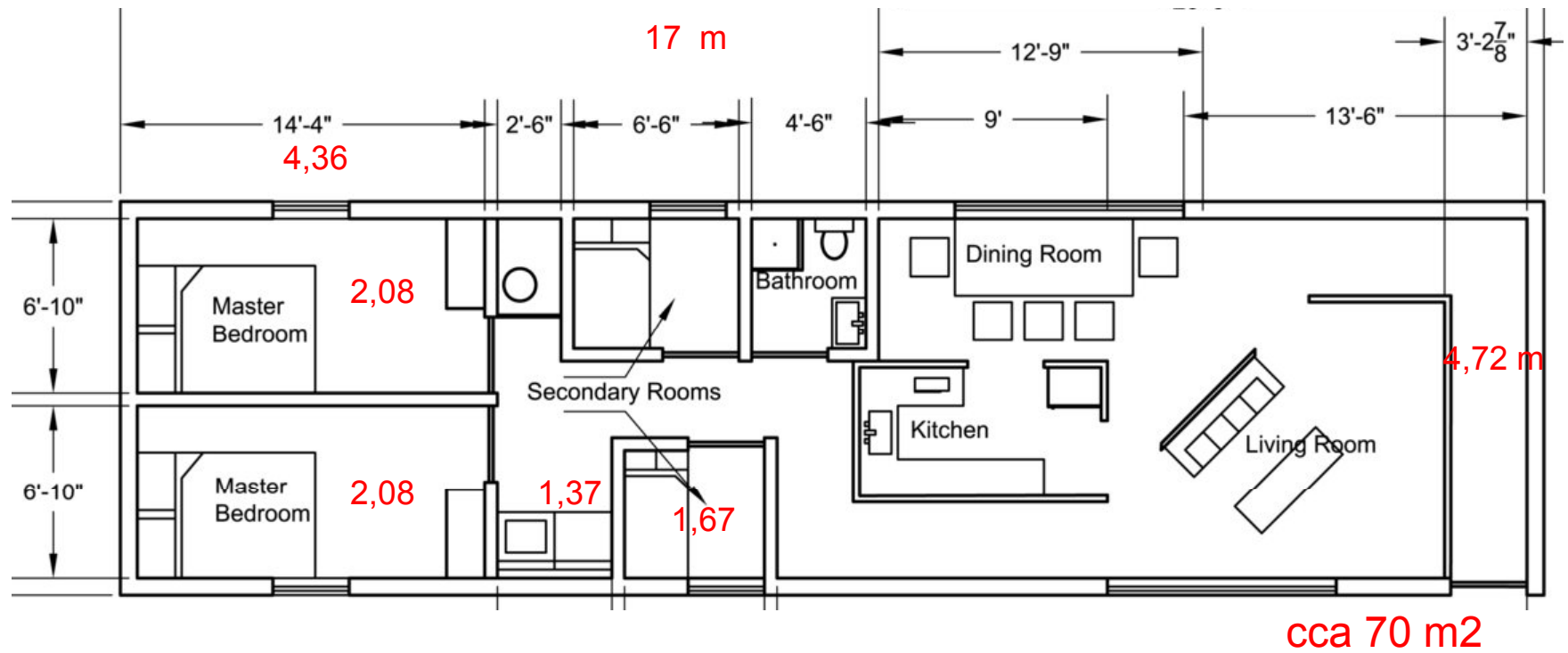
kamp kućica , kamp prikolica





Typical mobile home from late 1960s and early 1970s: twelve by sixty feet
(cca 65m²)





5



'trailer trash'

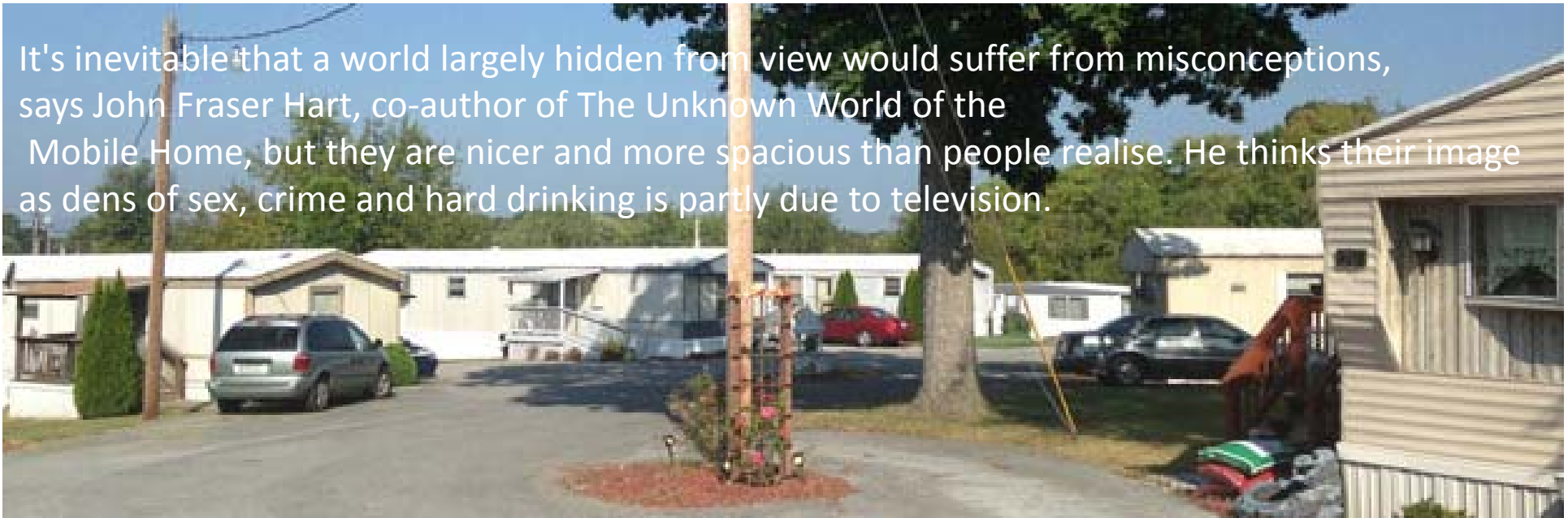


GETTY IMAGES

A **trailer park** is a semi-permanent or permanent area for [mobile homes](#) or [travel trailers](#). The main reasons for living in such trailer parks are the often lower cost compared to other housing, and the ability to move to a new area more quickly and easily, for example when changing jobs to another part of the country taking the mobile home/trailer with them.



It's inevitable that a world largely hidden from view would suffer from misconceptions, says John Fraser Hart, co-author of *The Unknown World of the Mobile Home*, but they are nicer and more spacious than people realise. He thinks their image as dens of sex, crime and hard drinking is partly due to television.



"It's very quiet and always clean," says bartender Sue Bobbitt (above left with partner John Dimmick),



*Butch Comer, 66 (above with partner Eleanor)
"I love it because you can come out and sit in a chair
and no-one is raising hell."*



Adria



24 m²



Prestige



30 m²

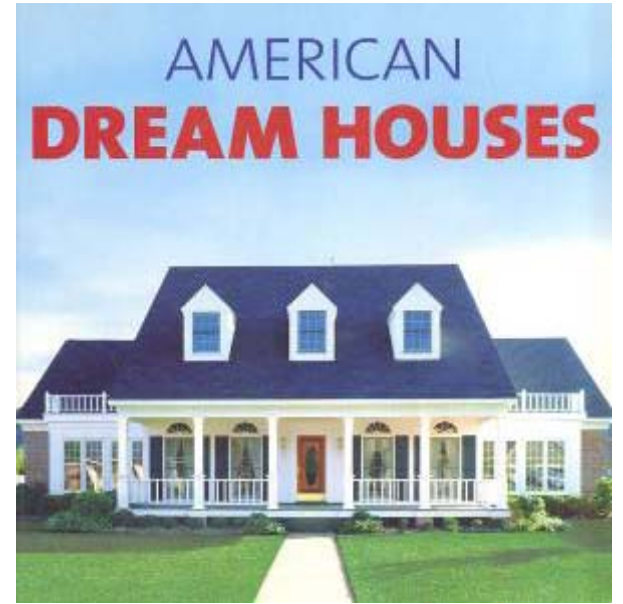
“kamenizacija” kamp-kućice na Jadranu

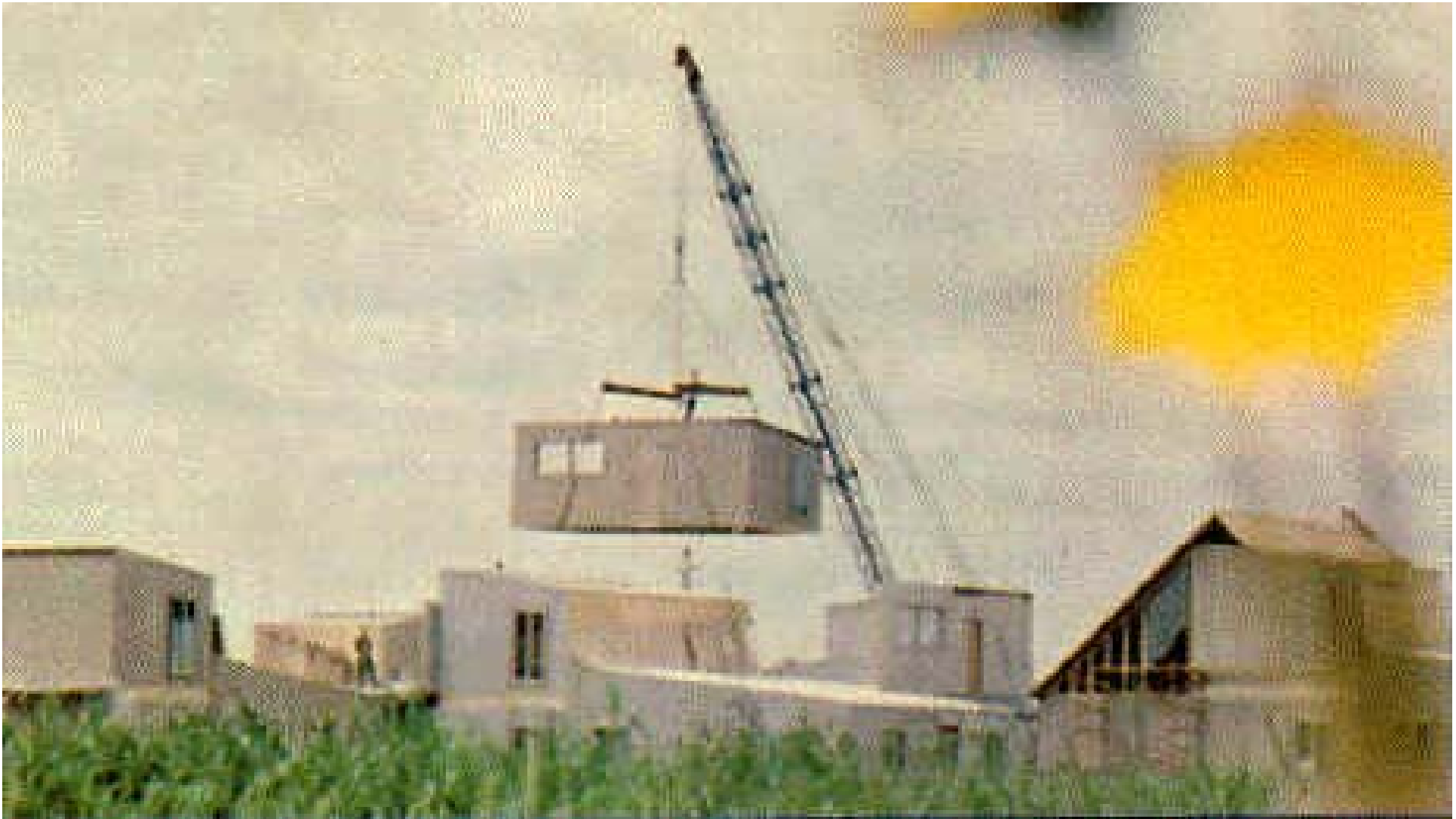


cigla, crijep (pečena glina); cement (pečeni lapor); beton=cement+šljunak/sitni kamen
vapno (pečeni kamen vapnenac) ; aluminij (boksit), željezo (stijena, ruda, minerali)

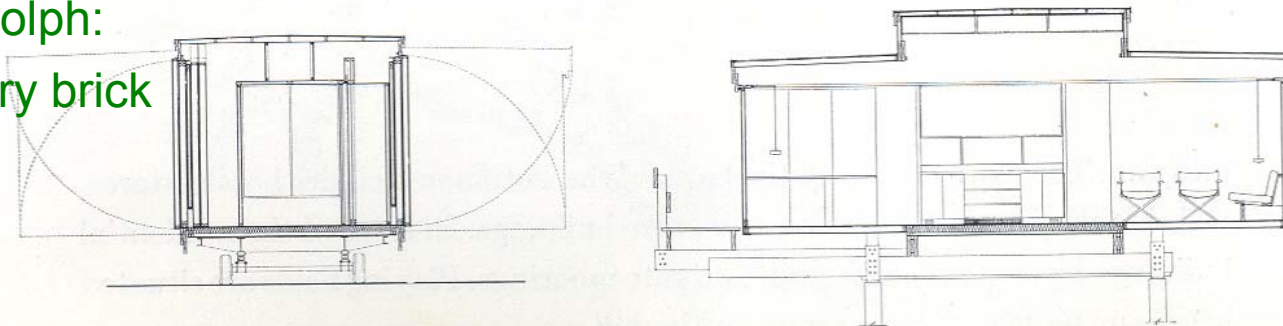


“ kućica kamionom i brodom putovala do Dugog Otoka”

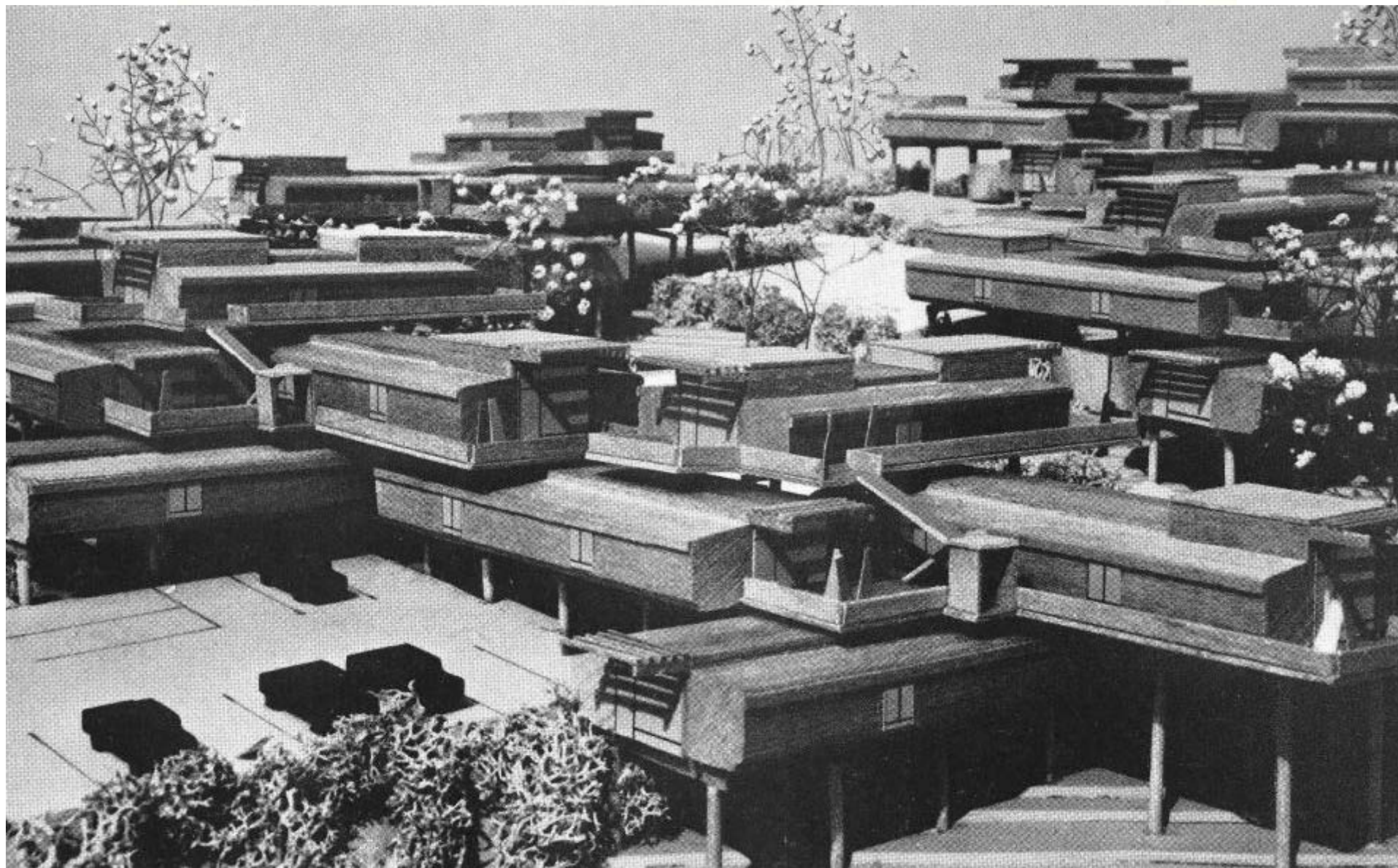




Paul Rudolph:
XX century brick

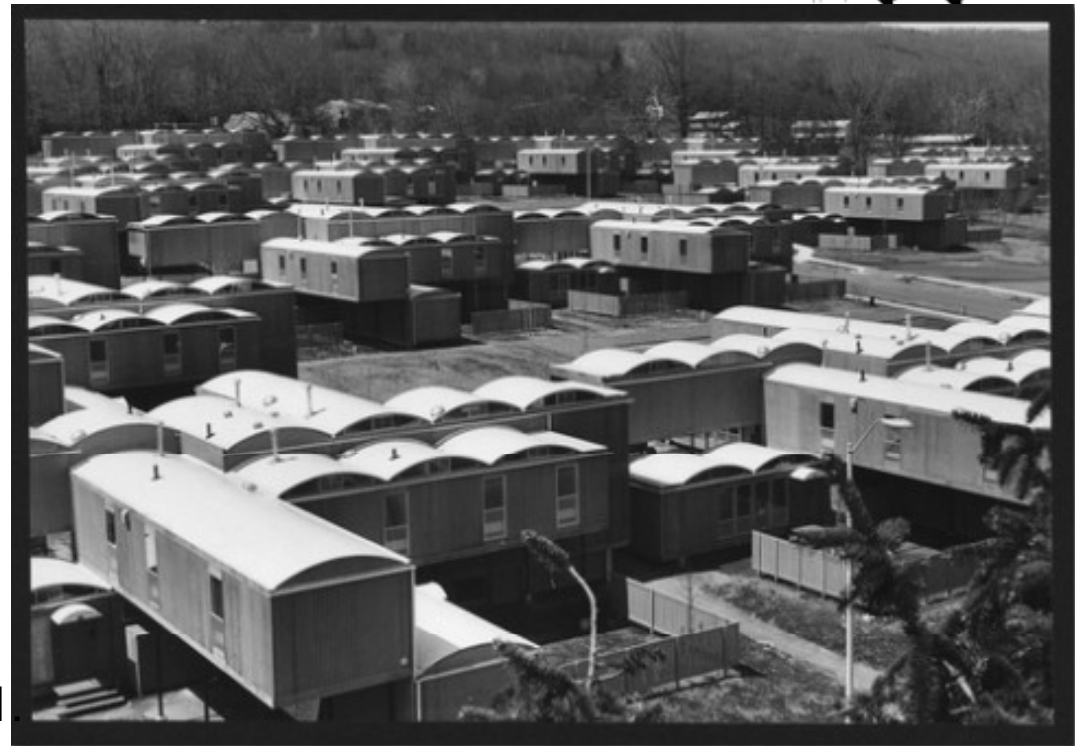
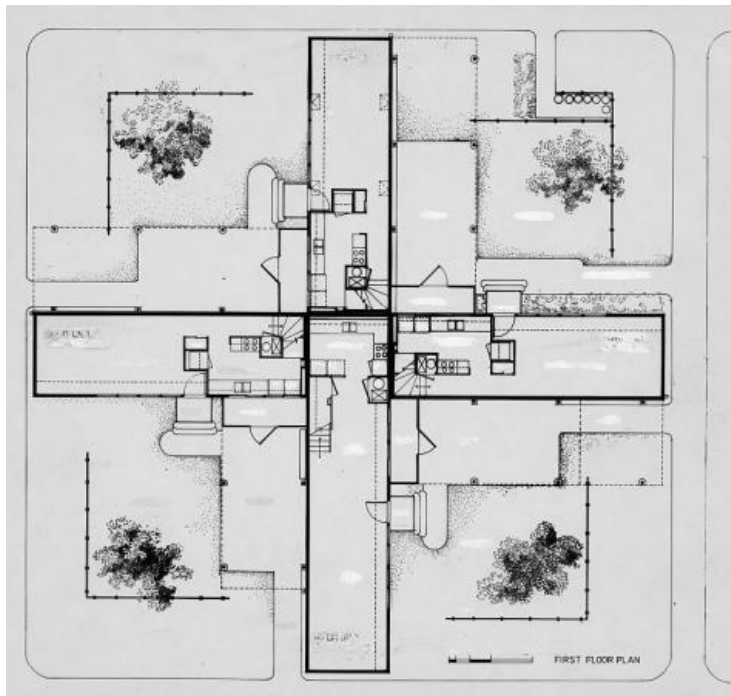


"opeka 20. stoljeća"



Paul Rudolph: Married Student Housing, USA, 1968 –

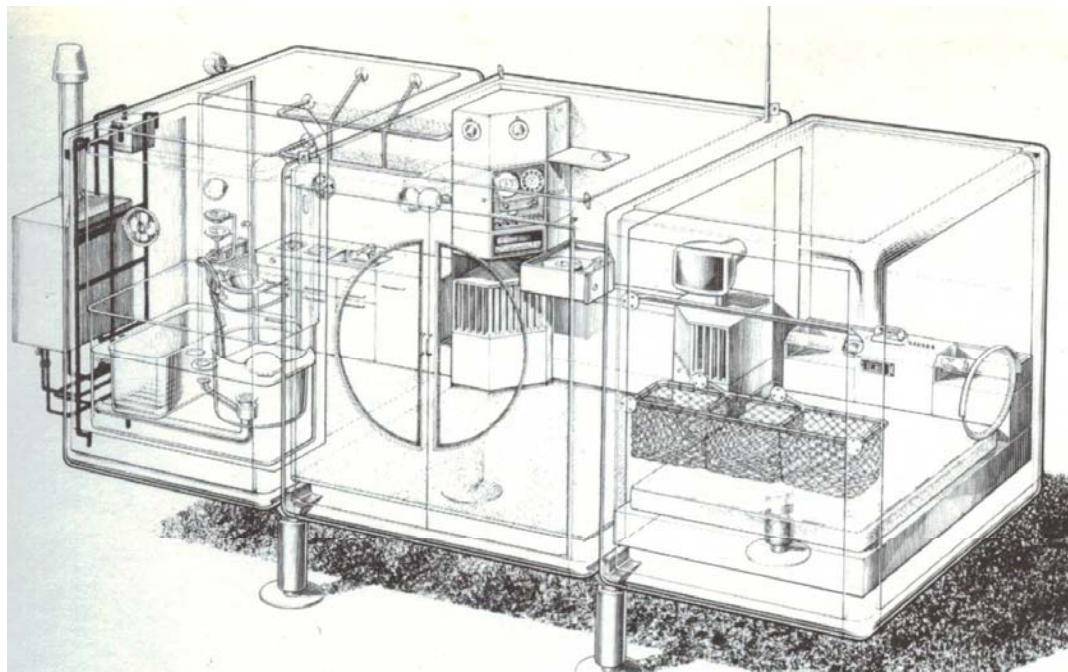
148 units on 12.5 acres.(5 ha)
each module,
12 feet wide by 27, 39 or 51 feet long
3,6 x 8,1 / 11,7 / 15,3/ metra
23m2 42 m2 55 m2



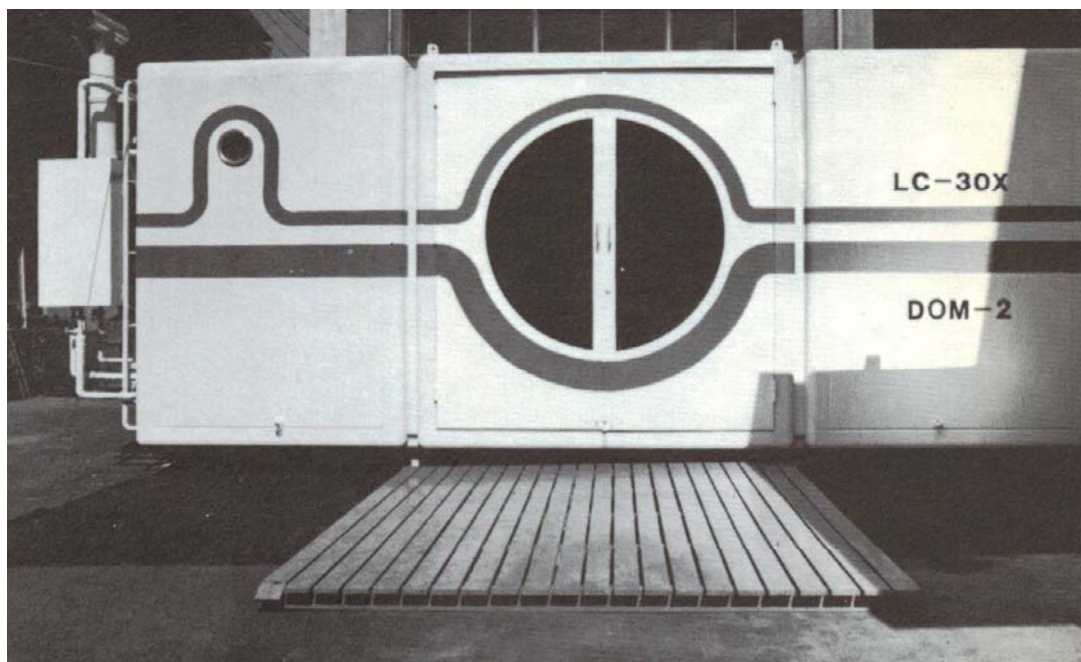
This project was demolished in 1981.

Paul Rudolph: Oriental Masonic Garden, New Haven, 1968.- 1981.

capsule

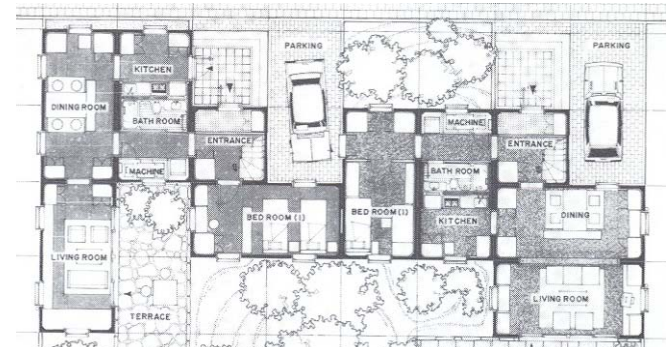
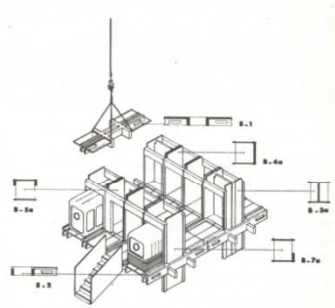
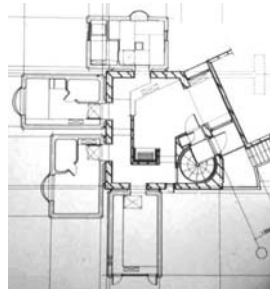


18 m²



Kisho Kurokawa: kapsula 3x6 m iz tri dijela: kuhinja/kupaonica/instalacije/boravak/spavanje

1972.



kapsule 2,5 x 4m =dimezije tradicionalne "čajnice"



Kisho Kurokawa: **betonske kapsule 3x3x6 m**

"Unit+Unit+.....=city"

1975.

container

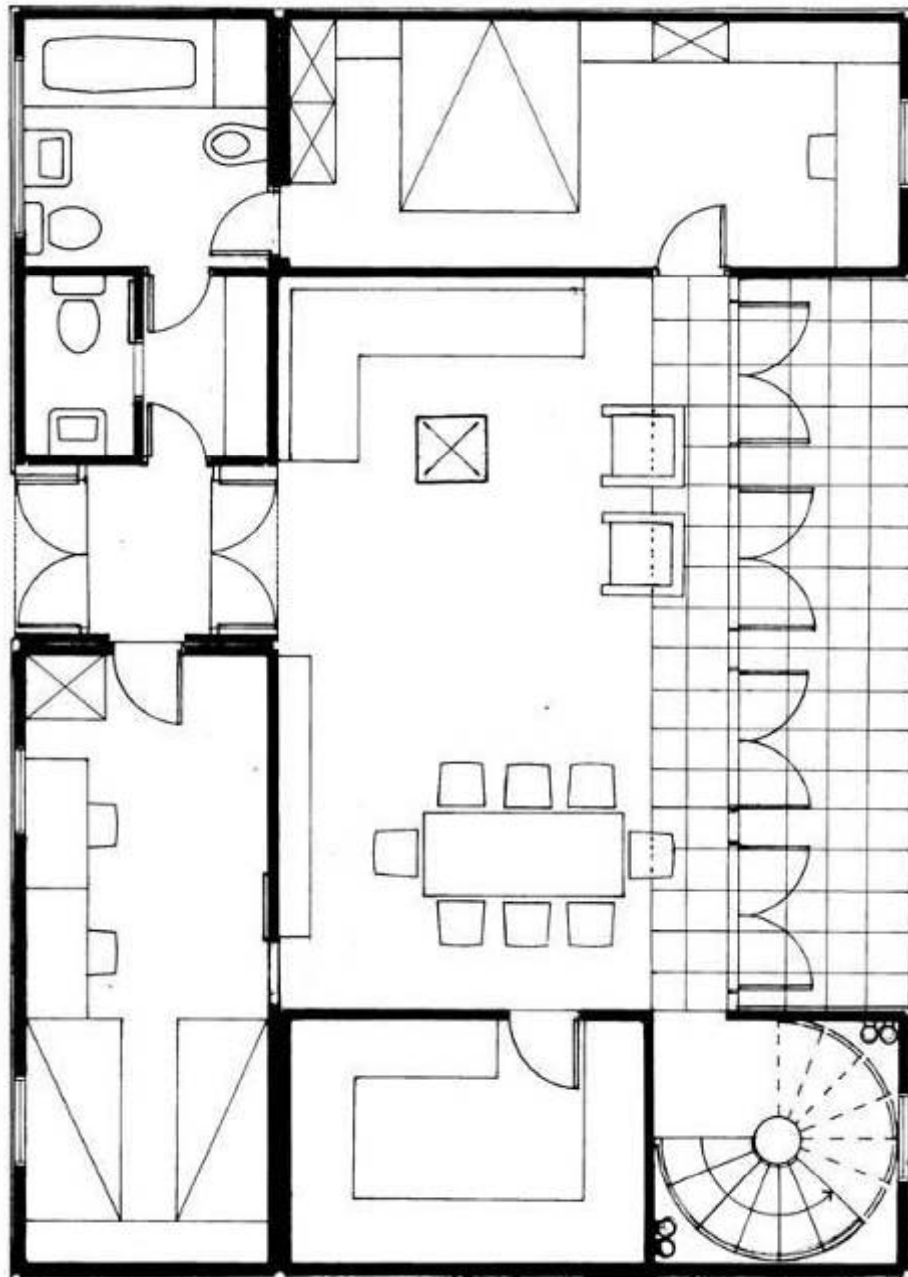
KONTEJNERI "JEDINSTVO" KRAPINA

cca 300/600/900 250 260 cm

Mjere	Dužina	Širina*	Visina*
10 stopa	2991 mm	2438 mm	2591 mm
20 stopa	6058 mm	2438 mm	2591 mm
30 stopa	9125 mm	2438 mm	2591 mm

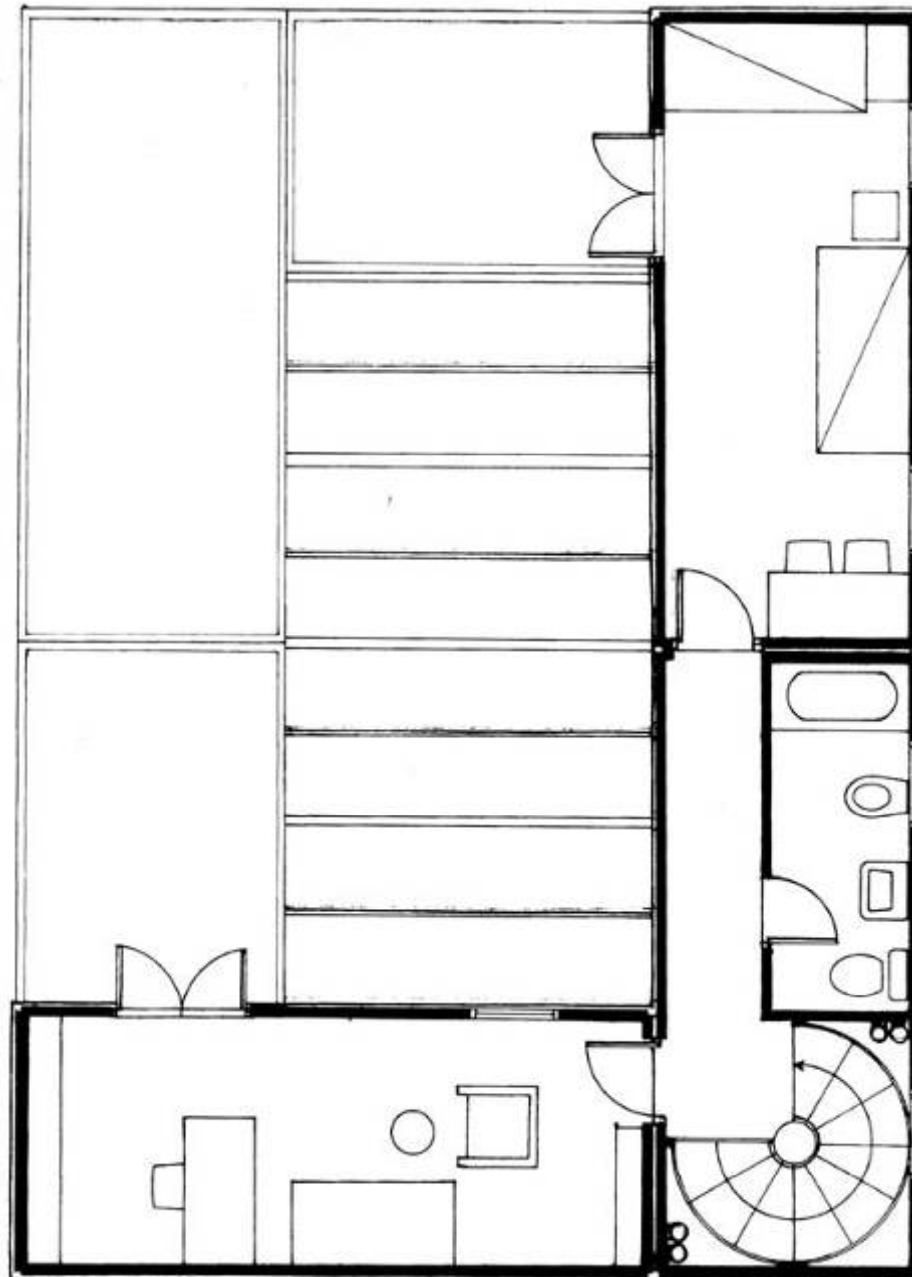
* - za specijalne narudžbe izrađujemo s visinama 3021 ili 2791 mm i širinom 3000

prizemlje

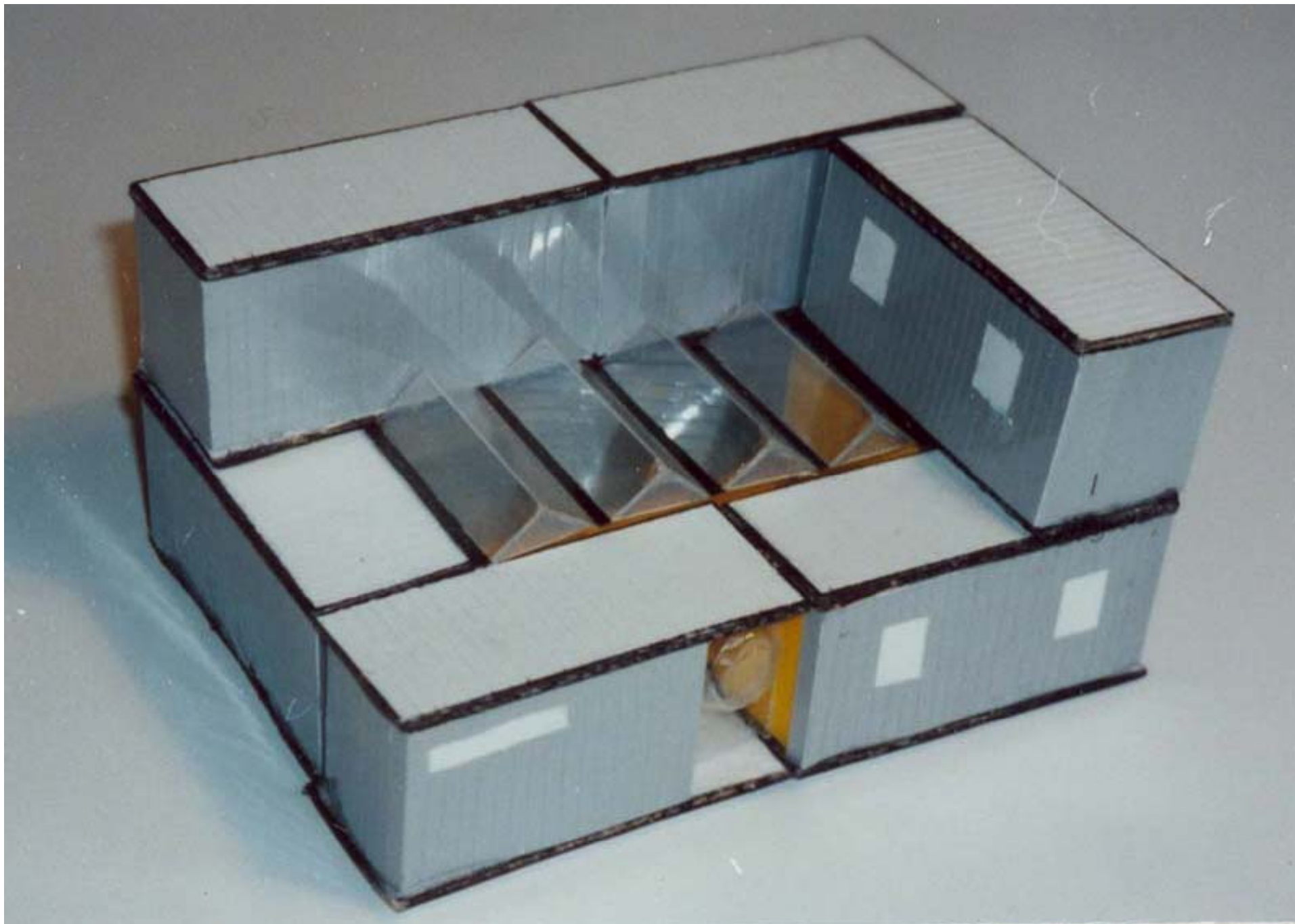


(140 m2)

kat



L.Pleština: "kontejneri Jedinstvo" = OPEKA XXI stoljeća

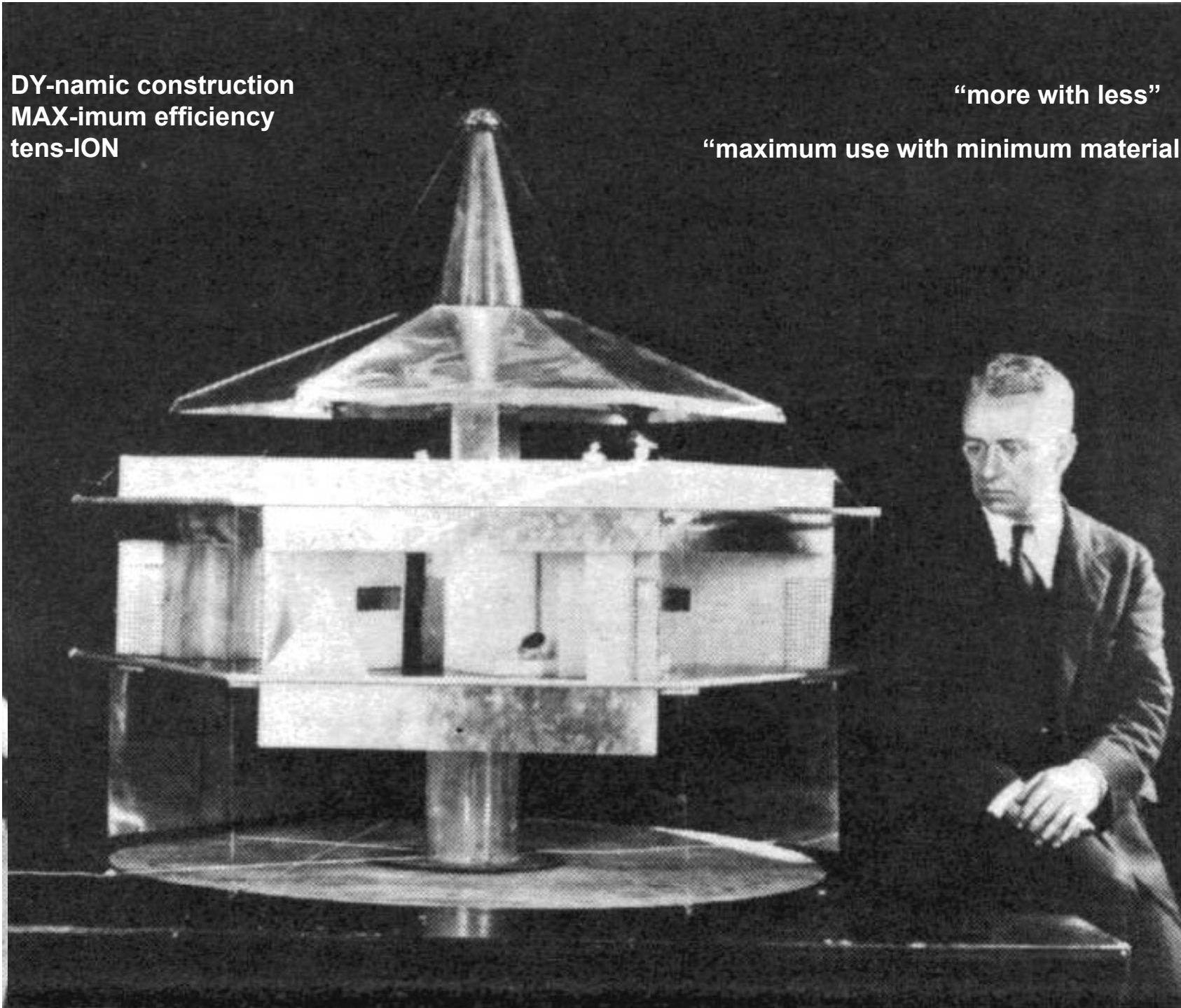


L.Pleština: obiteljska kuća od OPEKA XXI STOLJEĆA, 1995.

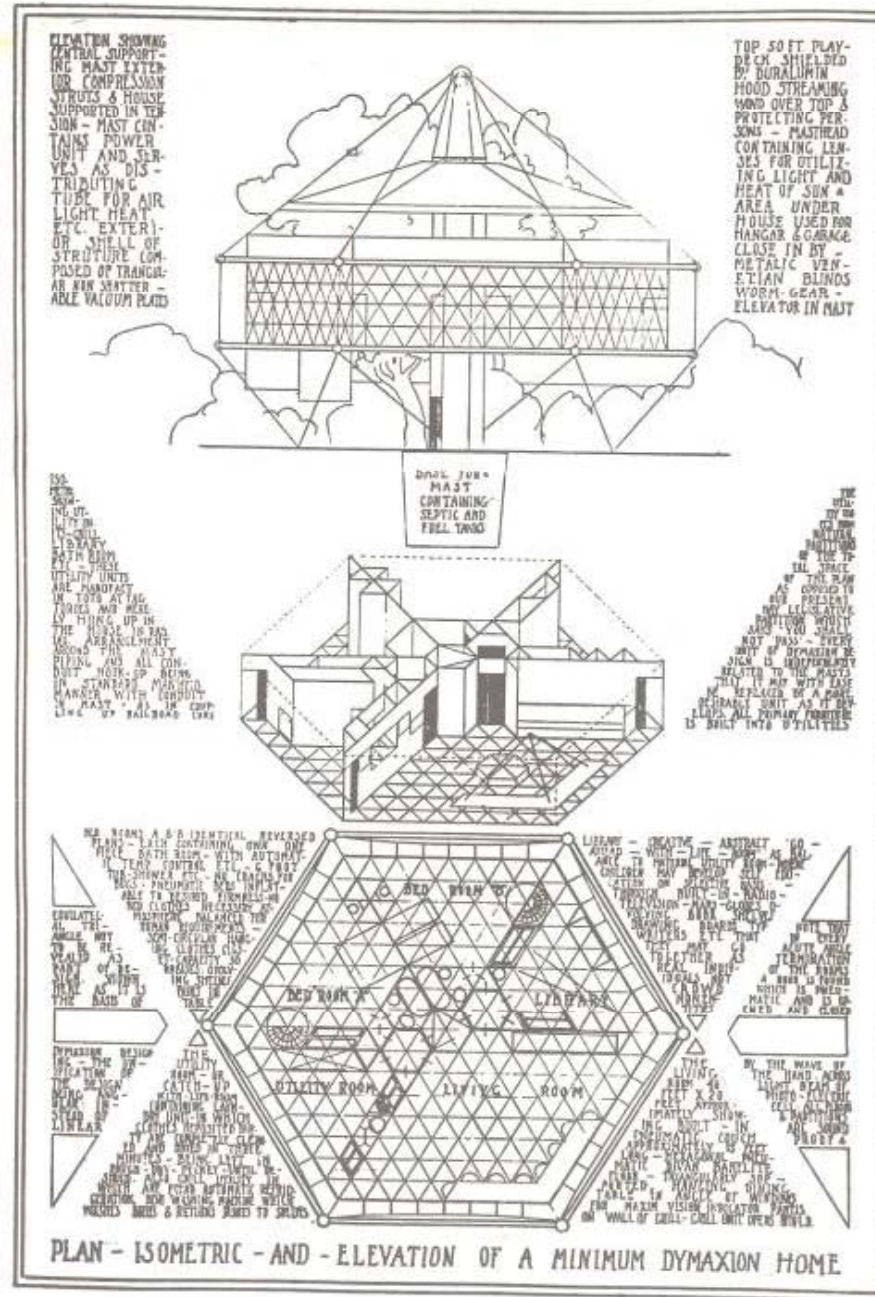
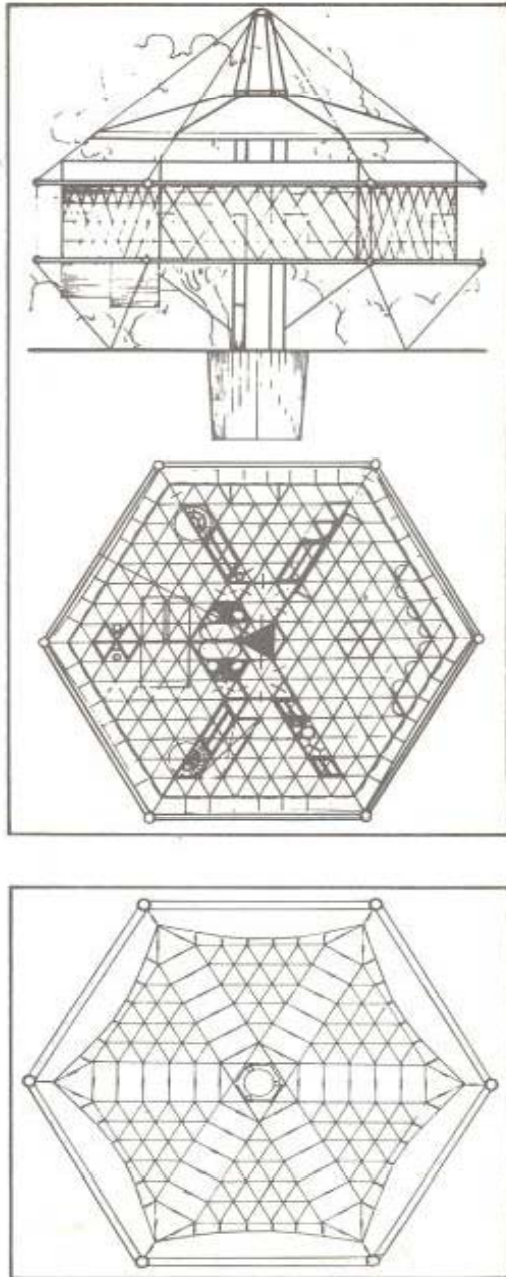
DY-namic construction
MAX-imum efficiency
tens-ION

“more with less”

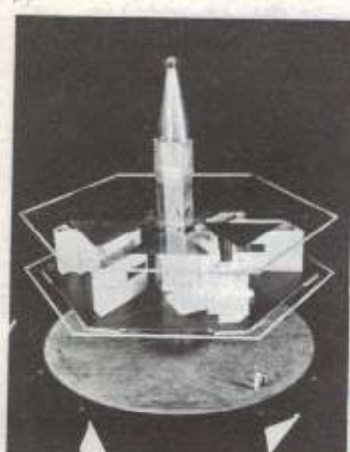
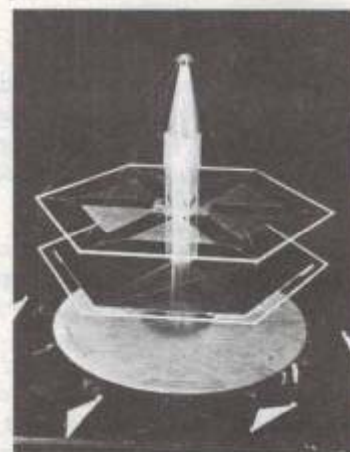
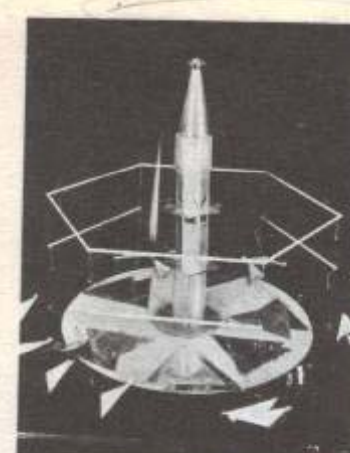
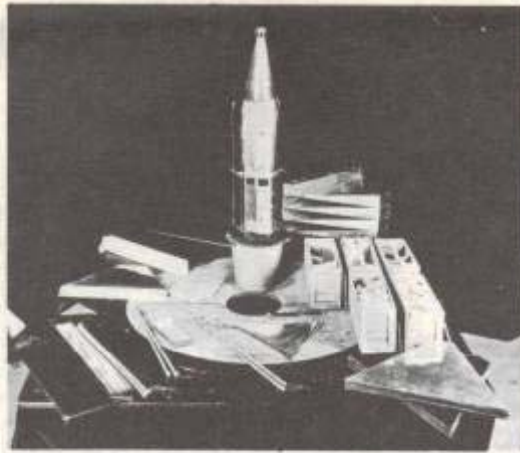
“maximum use with minimum material”



Buckminster Fuller: 4D Dymaxion House, 1927.

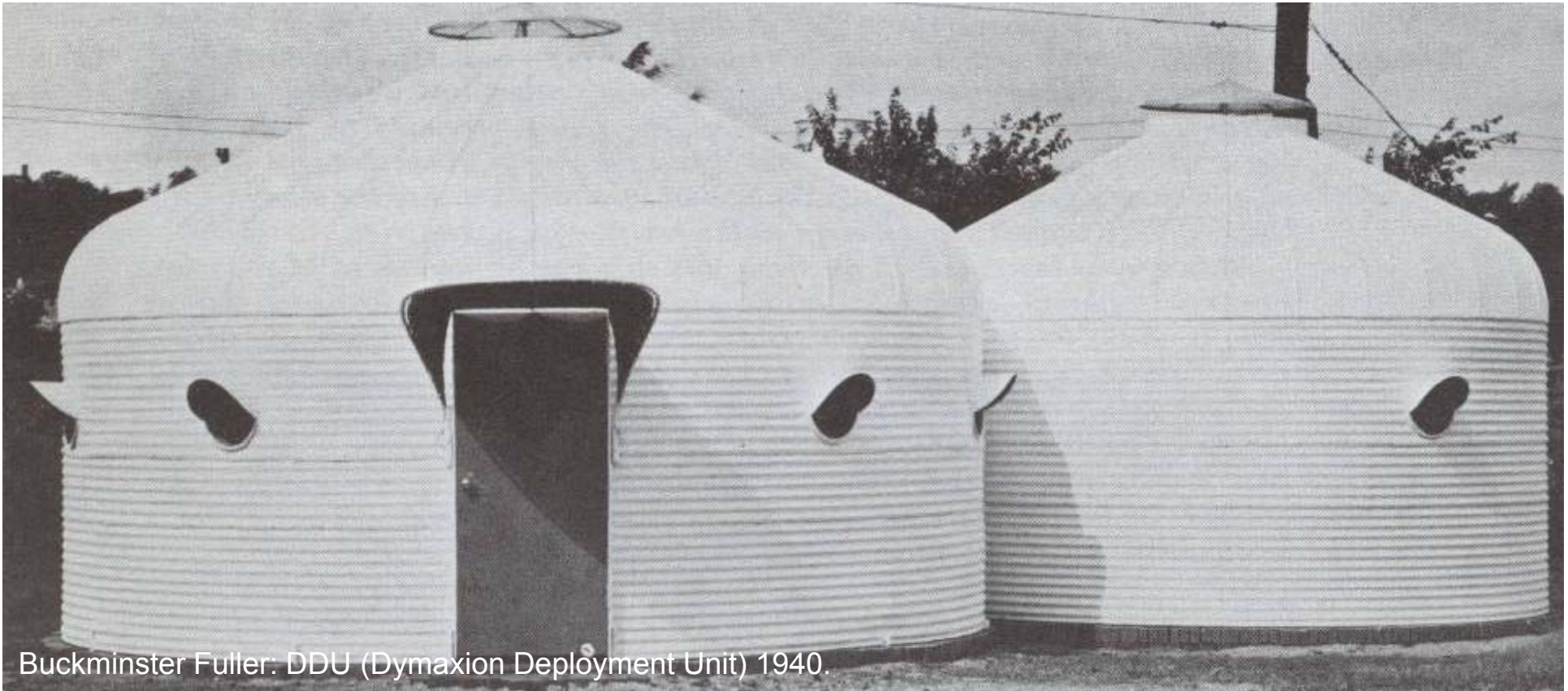


- 3 tone
- jarbol+
- ovješena konstrukcija
- ulaz dizalom
- u temelju:
- spremište vode,
- septička jama
- rezervoar goriva
- novi materijali:
- duraluminij
- bakelit
- pneumatski
- kreveti
- izostaklo
- leće
- fotočelije



144 m2

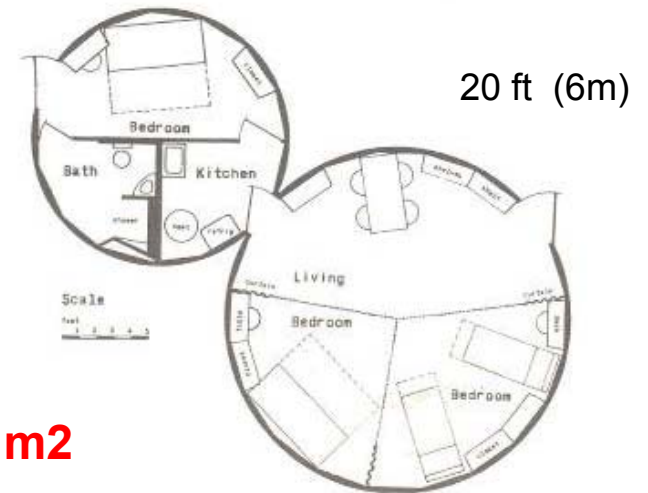
Dymaxion House:



Buckminster Fuller: DDU (Dymaxion Deployment Unit) 1940.



Yurta-Mongolija

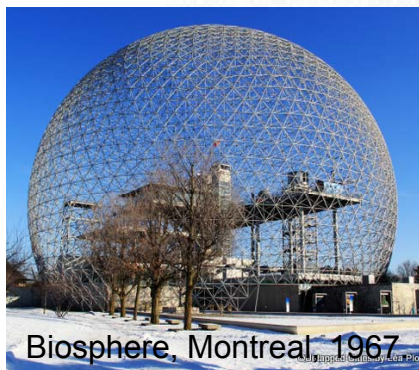
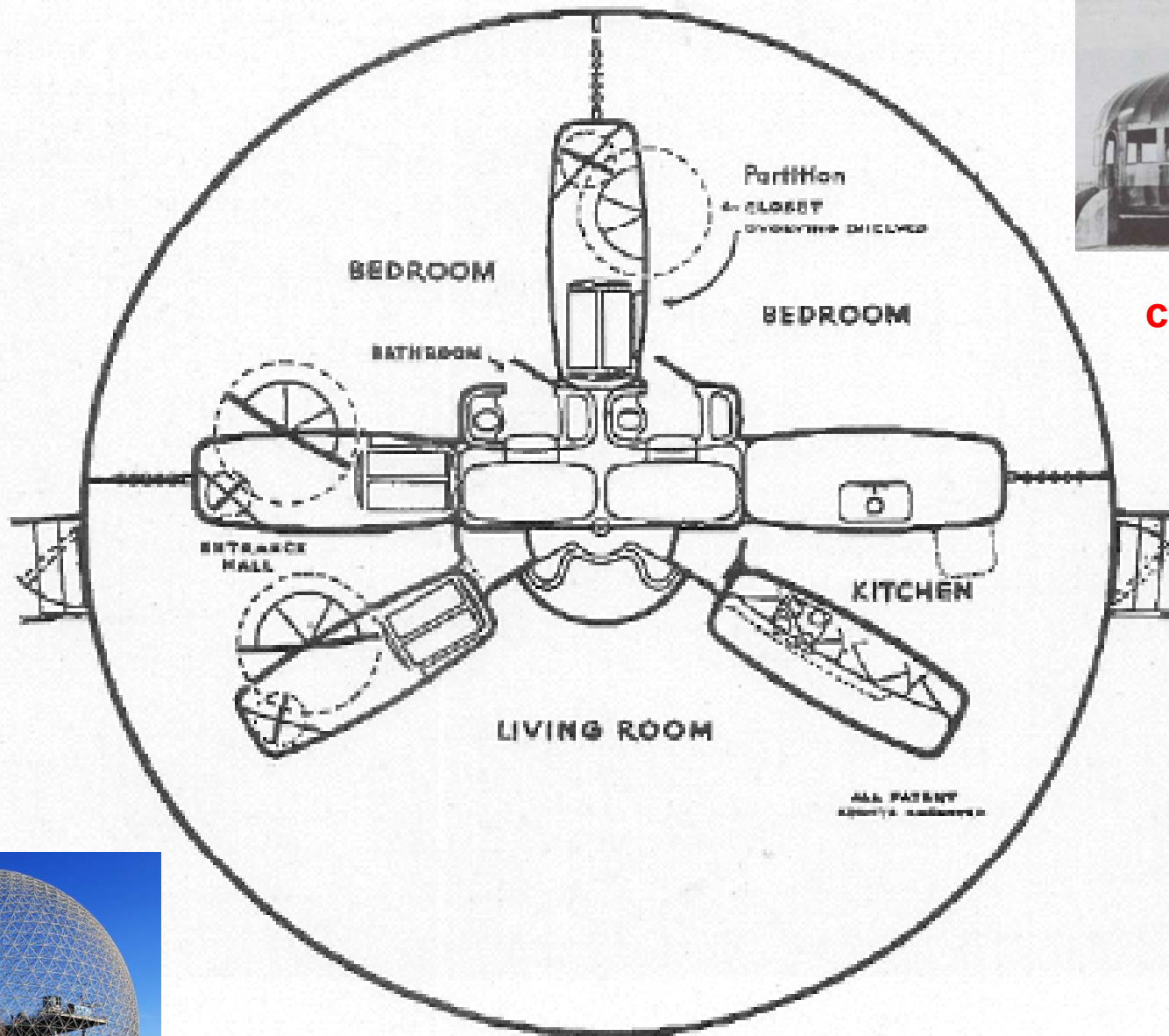


cca 40 m²

Buckminster Fuller: DYMAXION DWELLING MACHINE (= Wichita House), 1944

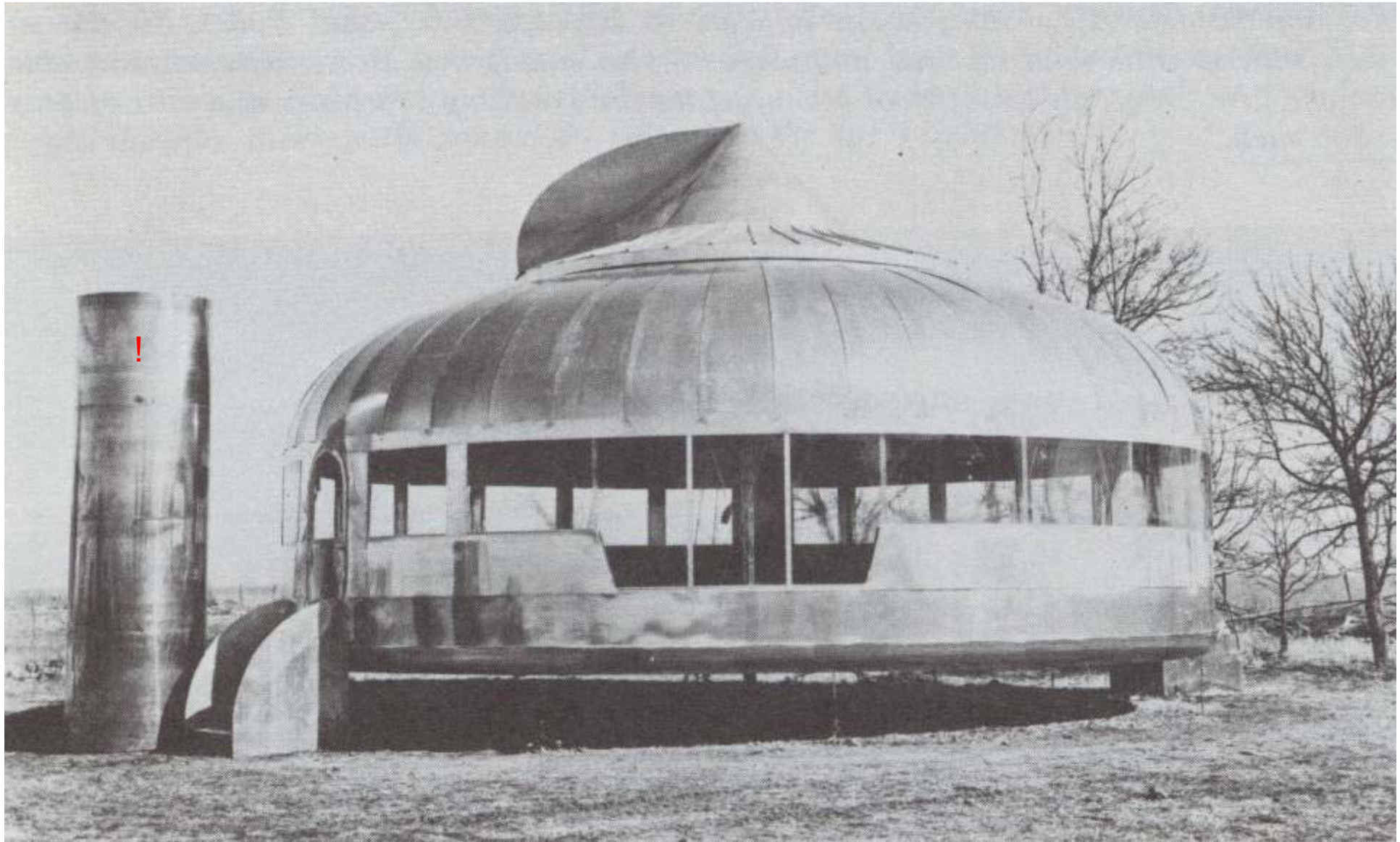


cca 80 m2



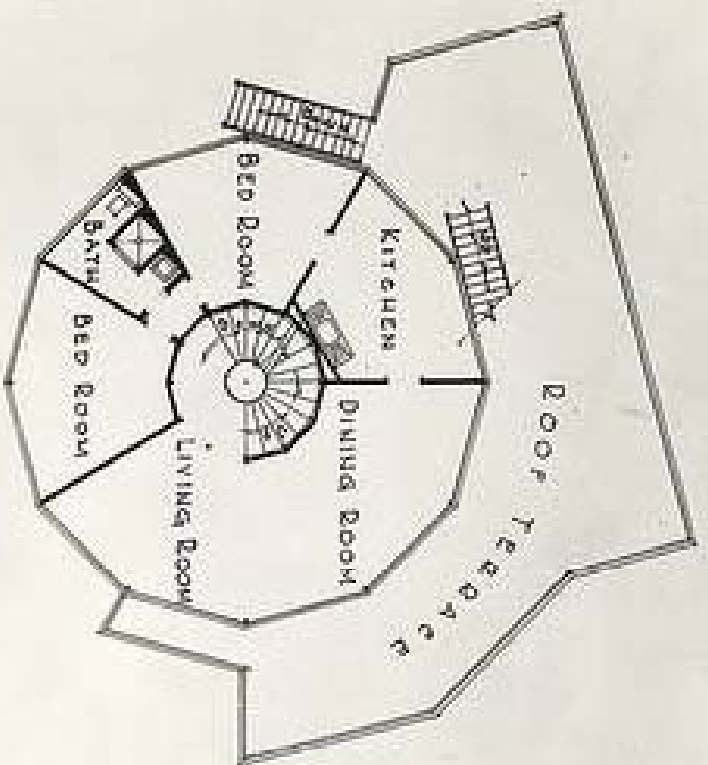
Biosphere, Montreal 1967

Buckminster Fuller: DYMAXION DWELLING MACHINE (= Wichita House), 1944.

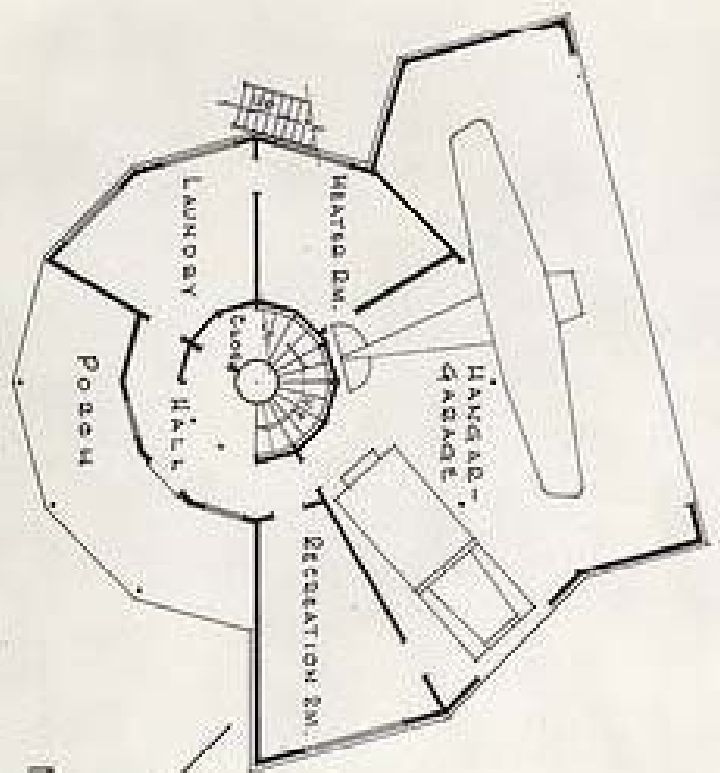


2 spavaonice, 2 kupaonice, kuhinja, ulazni hall i dnevni boravak
20.000 jedinica/godišnje

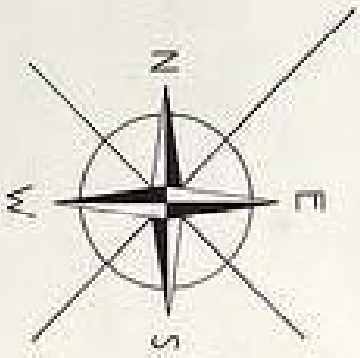
“10 pounds”
Total weight=6000 pounds=2724 kg



SECOND-FLOOR-PLAN



FIRST-FLOOR-PLAN

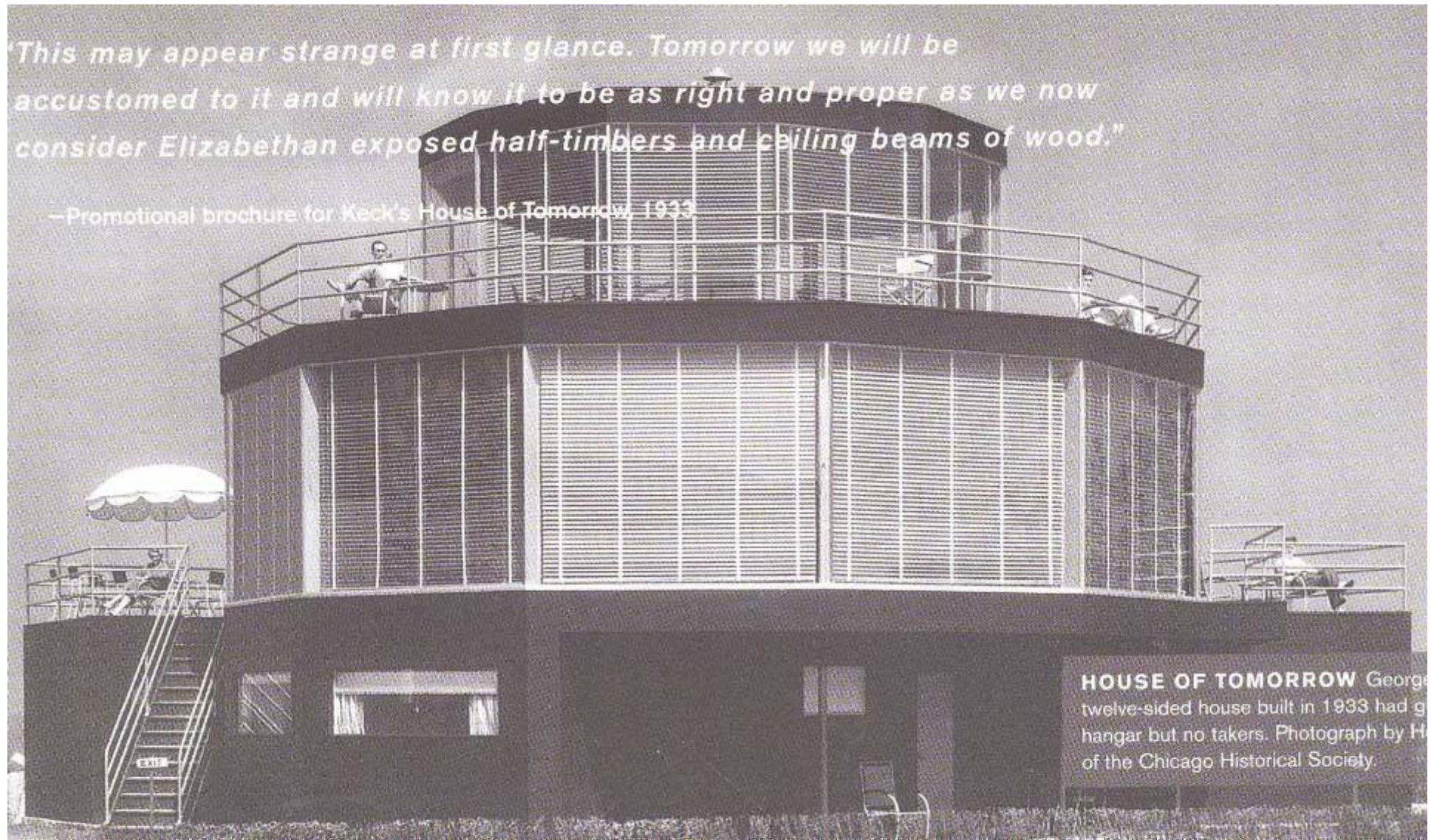


JOS. FAIRBANKS, ARCHT.
415 MADISON ST.
CHICAGO, ILLINOIS

HOUSE OF TOMORROW

A CENTURY OF PROGRESS
CHICAGO, ILLINOIS
1909

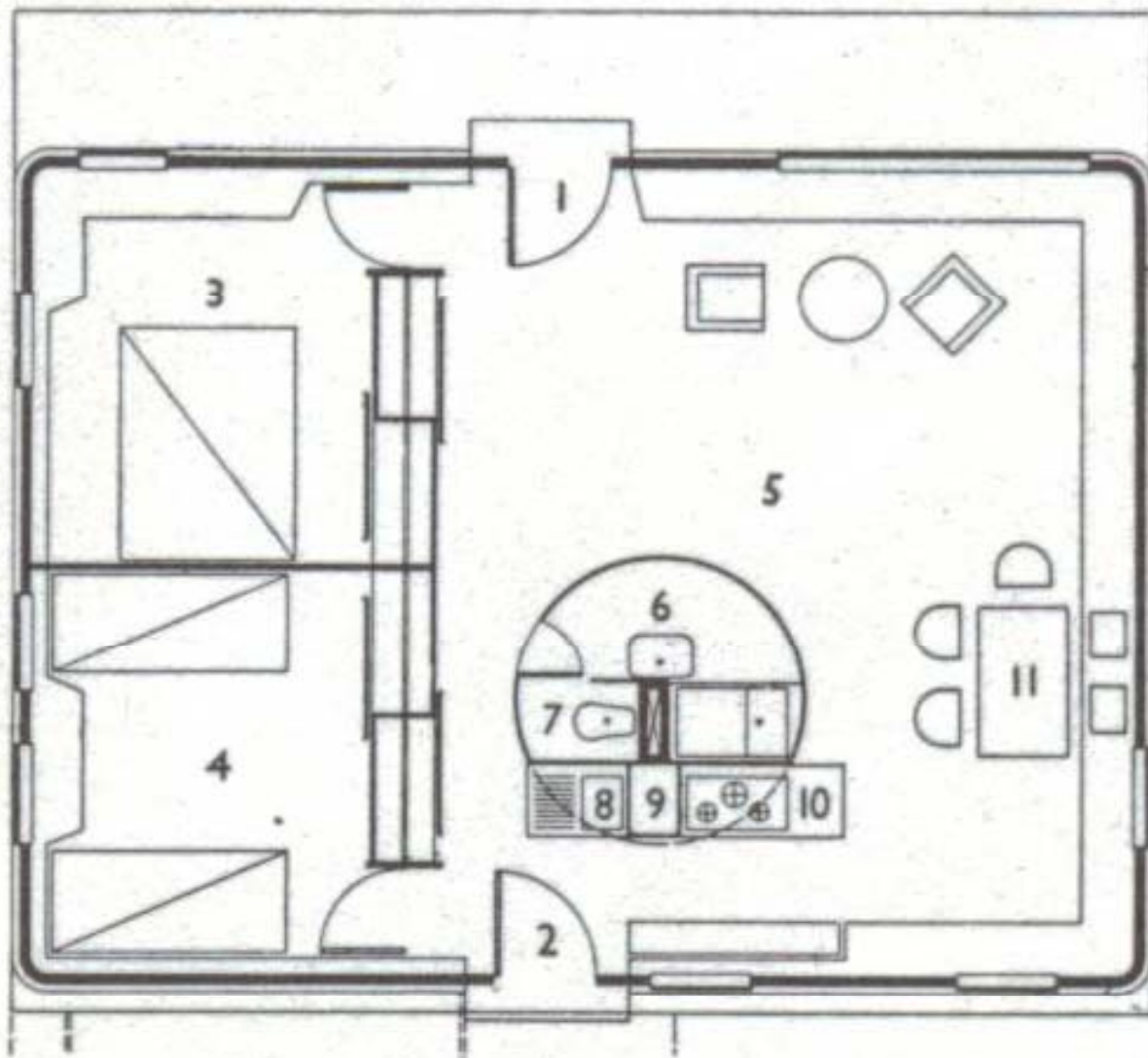
HOUSE OF TOMORROW



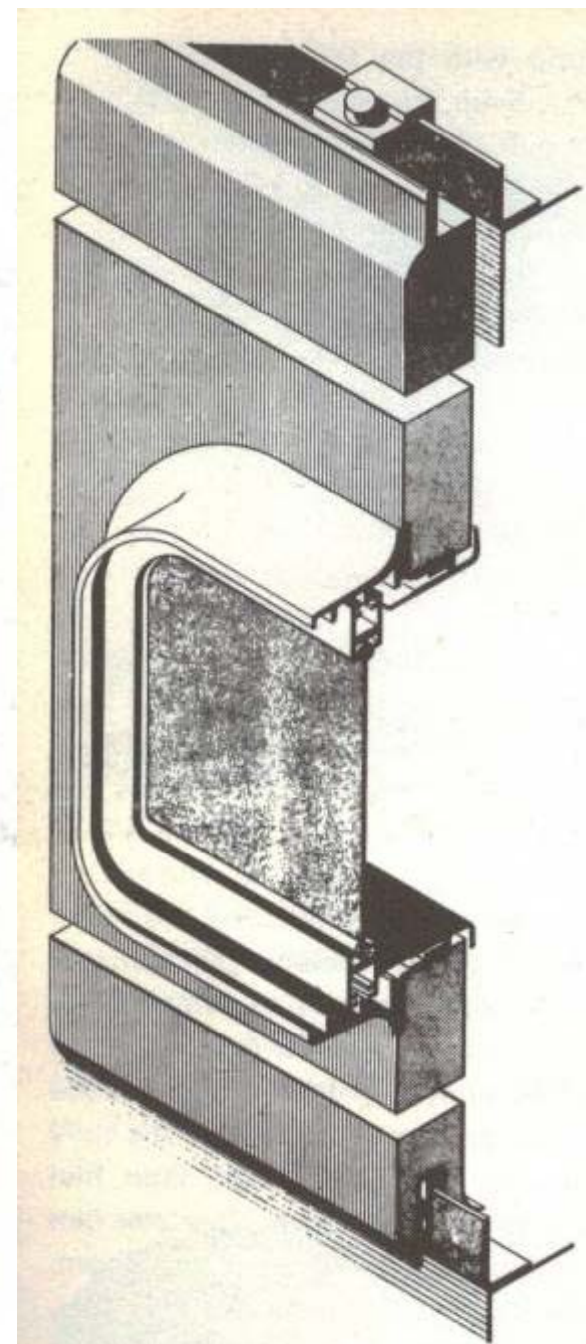
-čelična konstrukcija,centralno grijanje, air-condition,
velike staklene plohe,lamelirana sjenila prozora,
(750.000 posjetilaca u godinu dana)

Chicago World Fair, 1933.

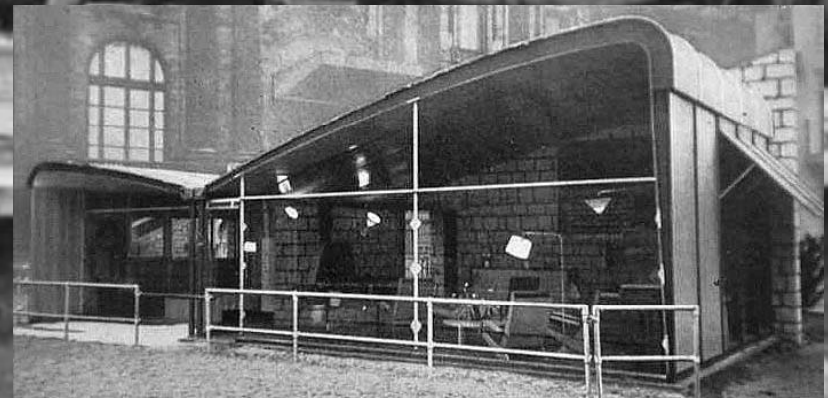
Jean Prouve: eksperimentalna kuća od metalnih panela

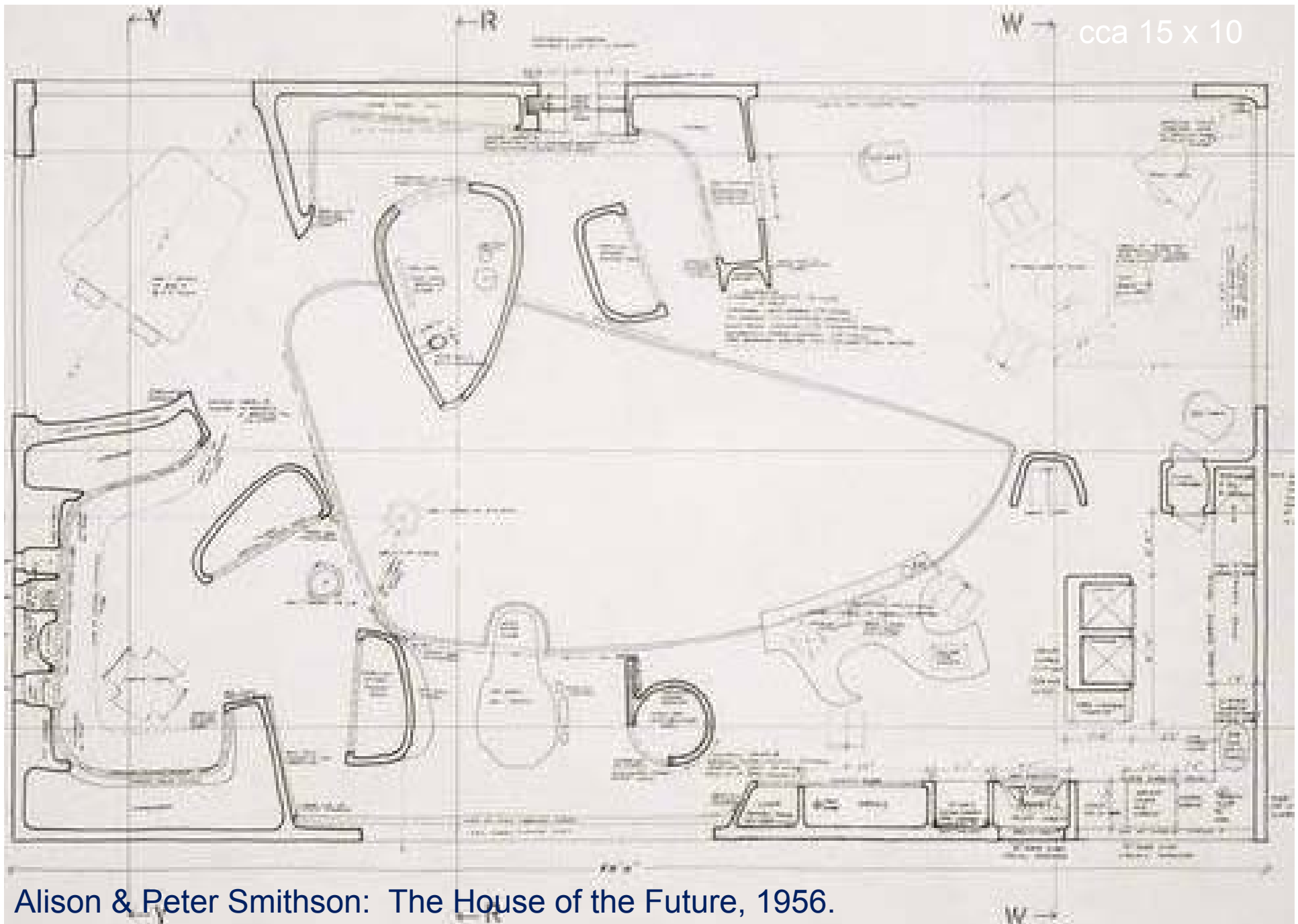


P= cca 65 m²

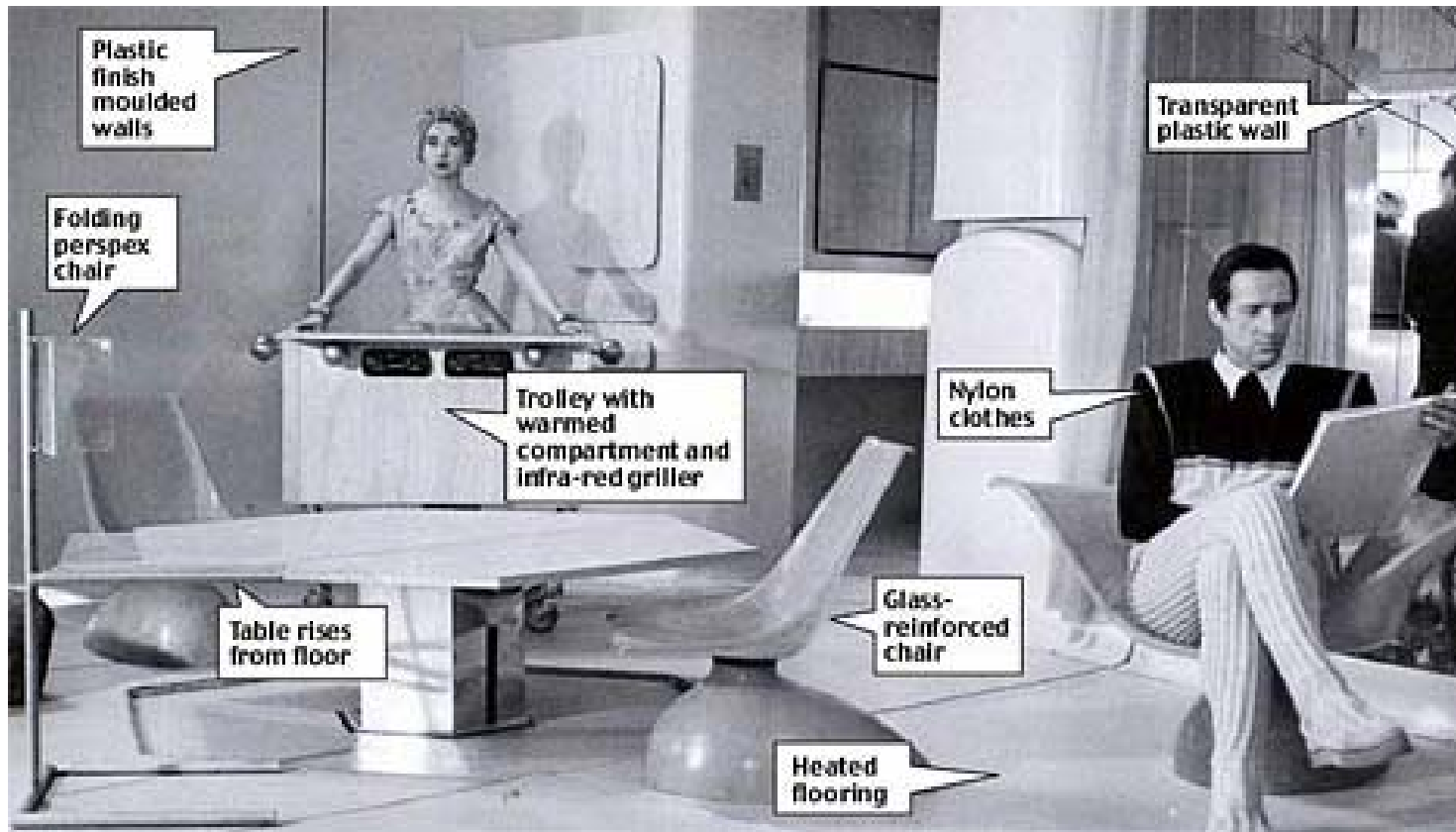


Jean Prouve:

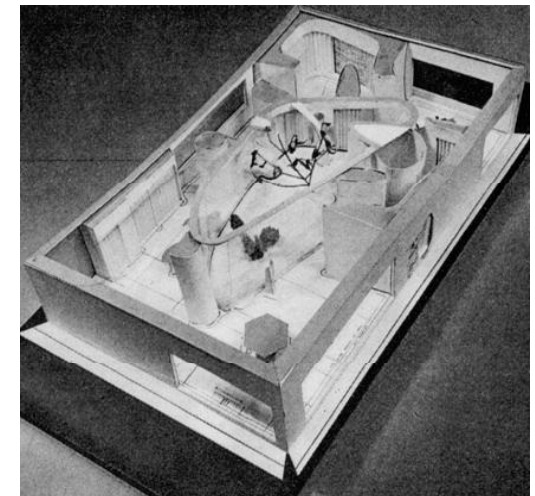


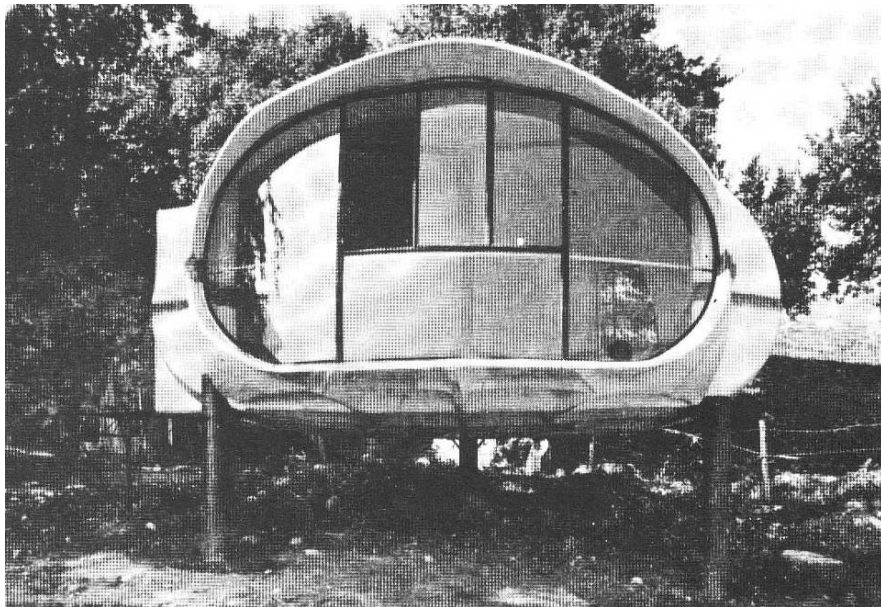
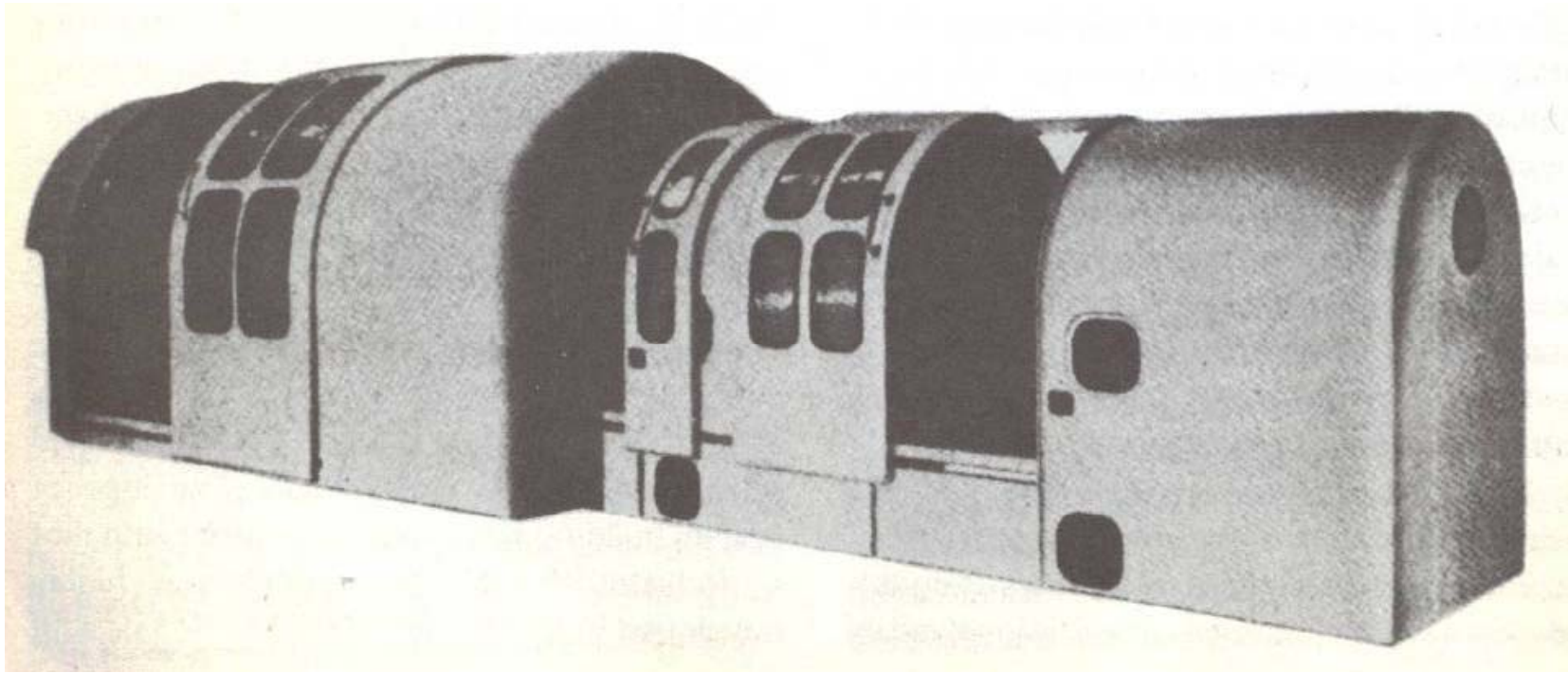


Alison & Peter Smithson: The House of the Future, 1956.



Alison + Peter Smithson
 The House of the Future,
 1956
 Daily Mail Ideal Home Show,
 London

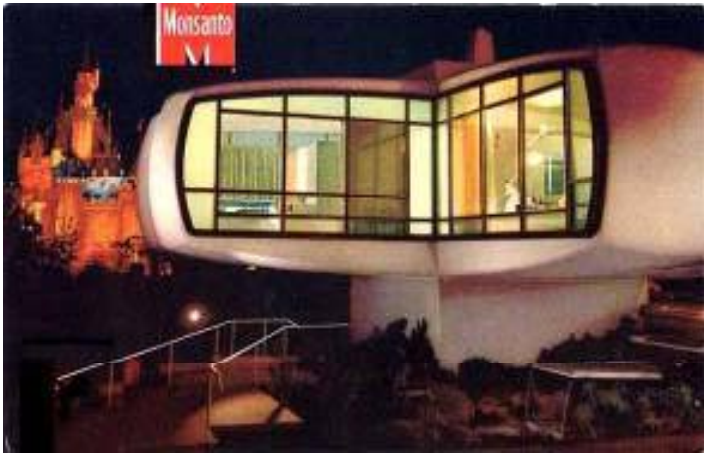




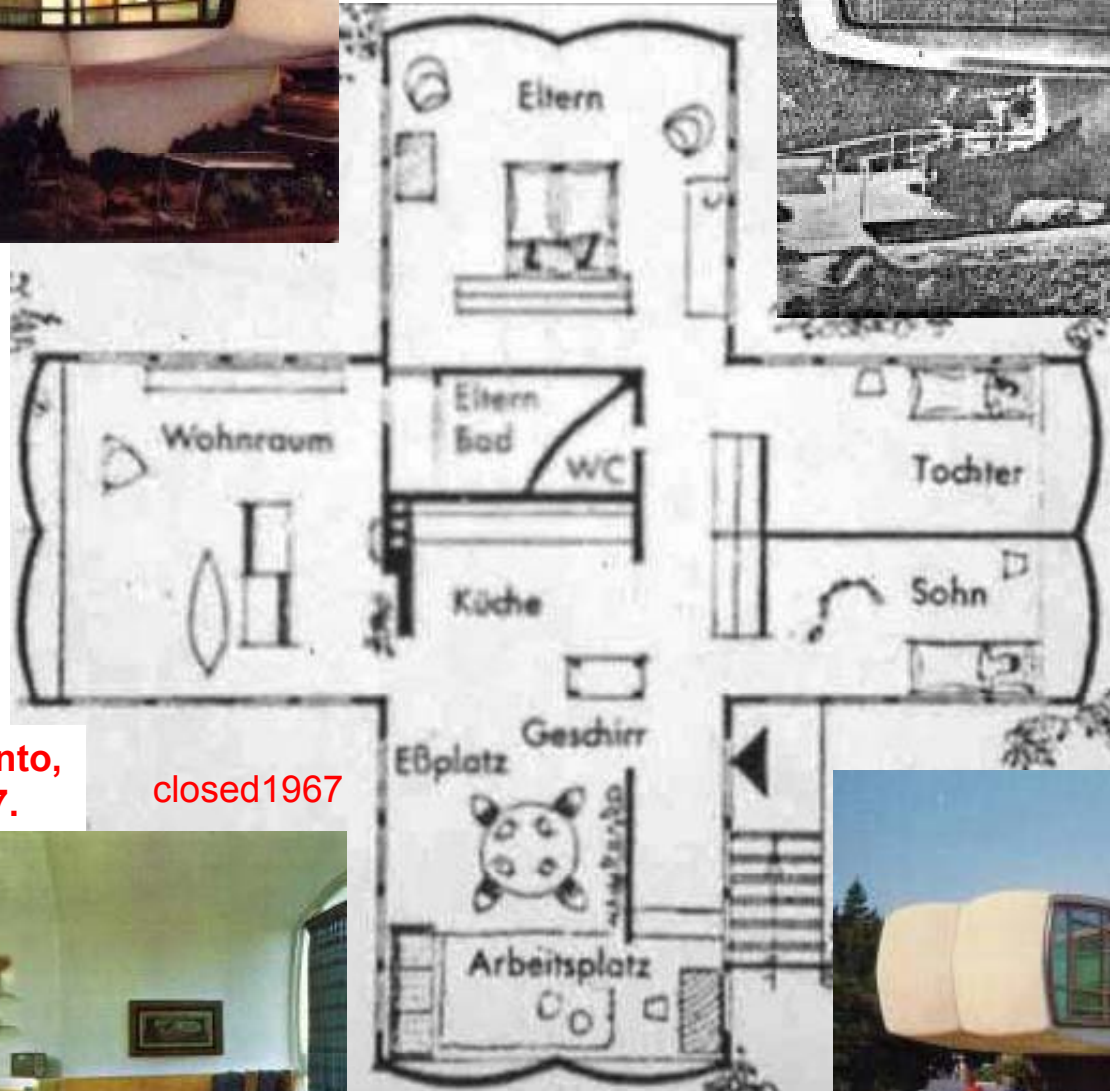
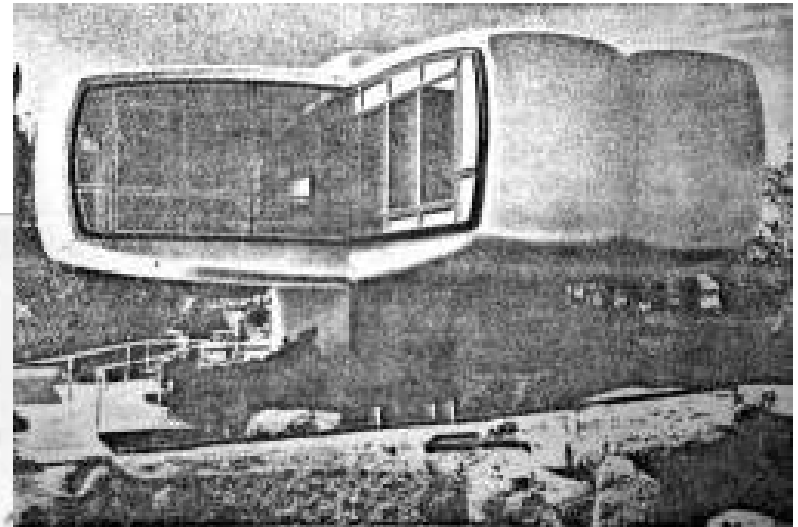
Experimental plastic house 1962.



Fibreglass house 1967.



cca 100 m²

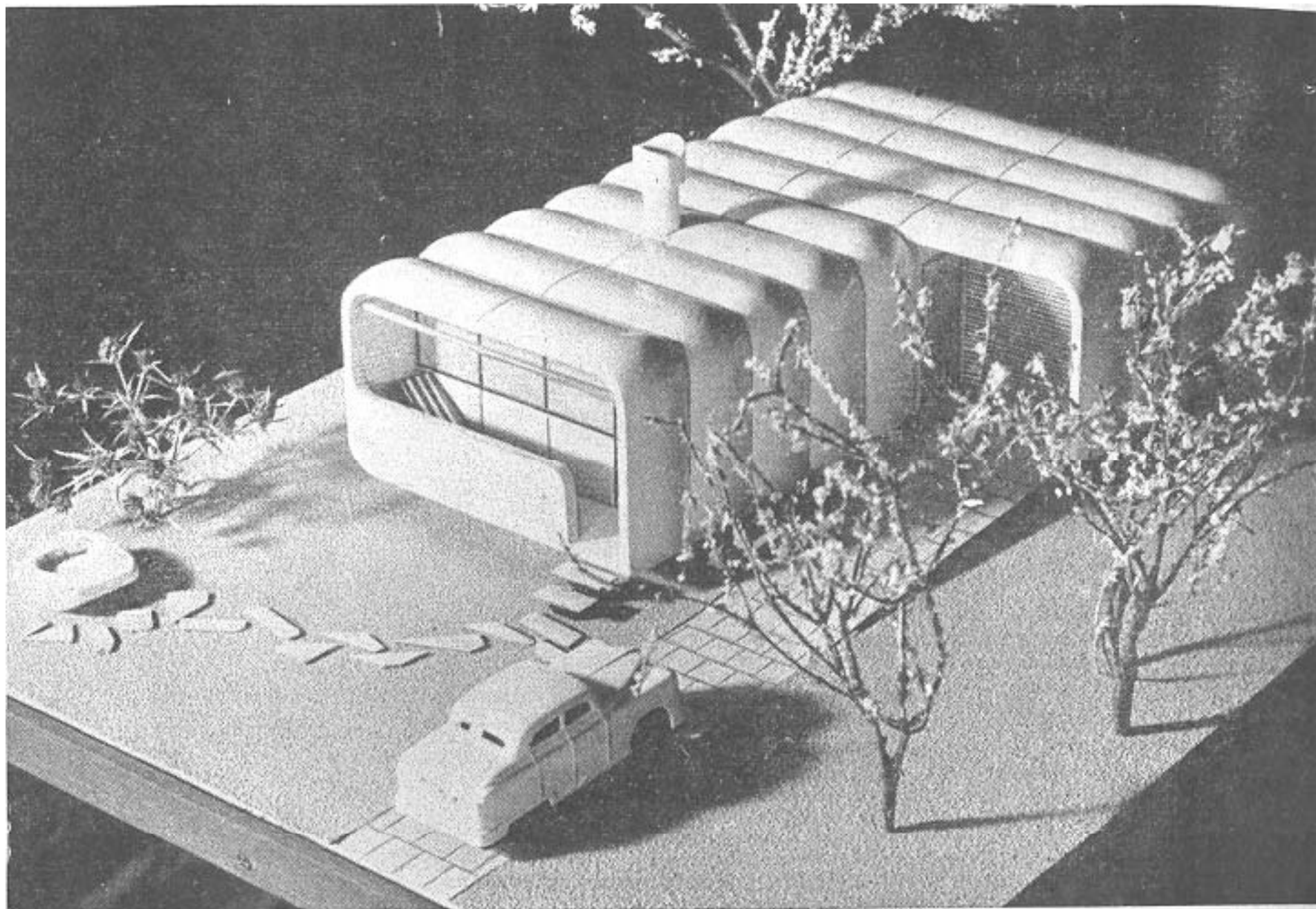


Disneyland: Monsanto,
Future House, 1957.

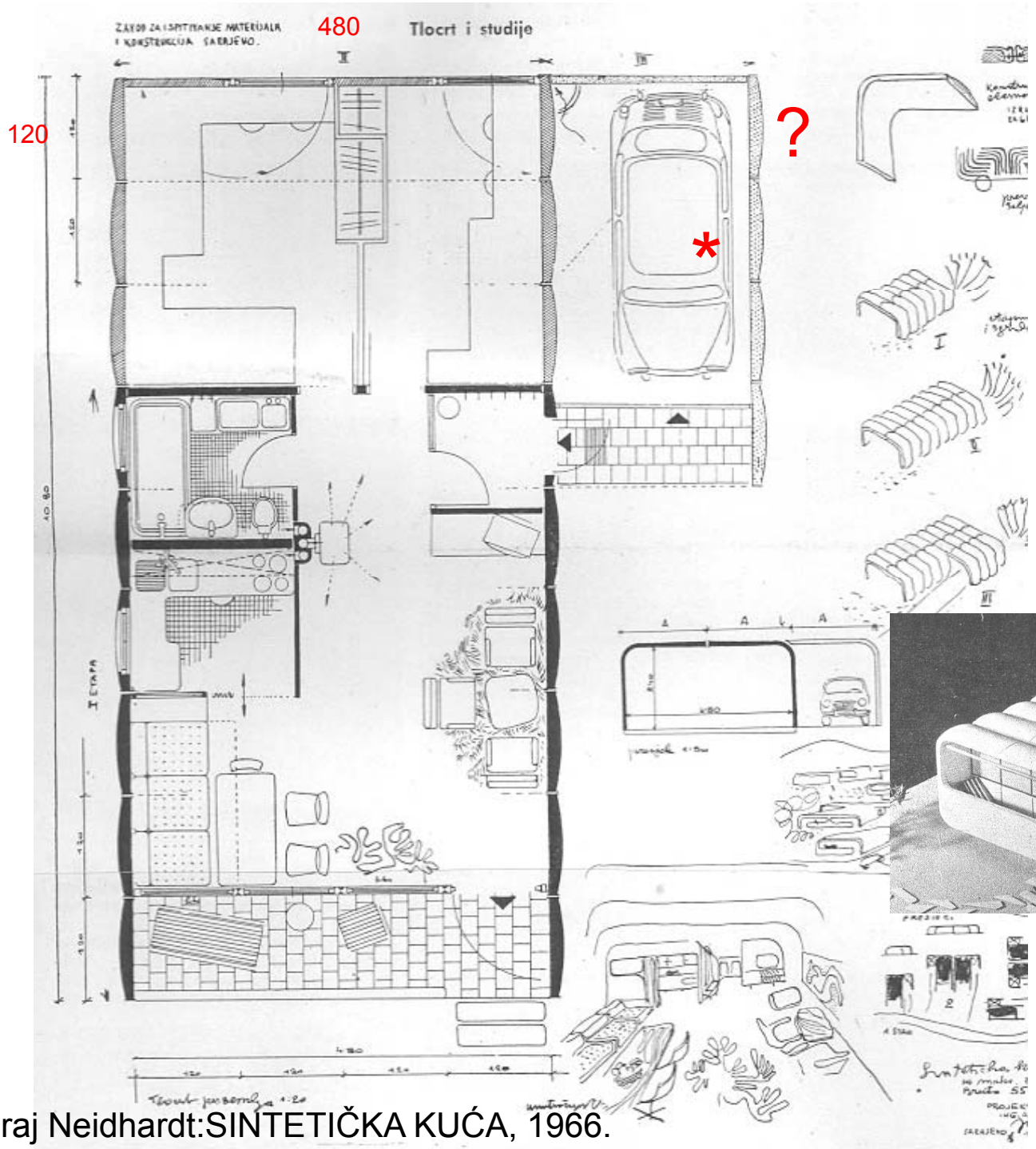
closed 1967

set in the year 1986





Juraj Neidhardt: SINTETIČKA KUĆA, 1966.



120

480

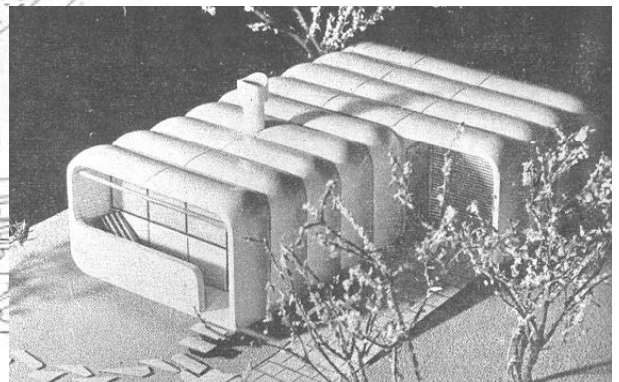
Tlocrt i studije

?

*

? fičo
330x134x140 cm

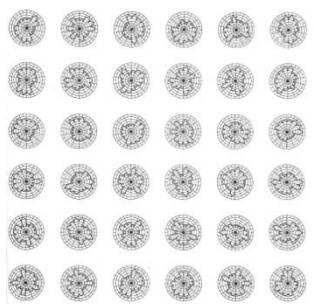
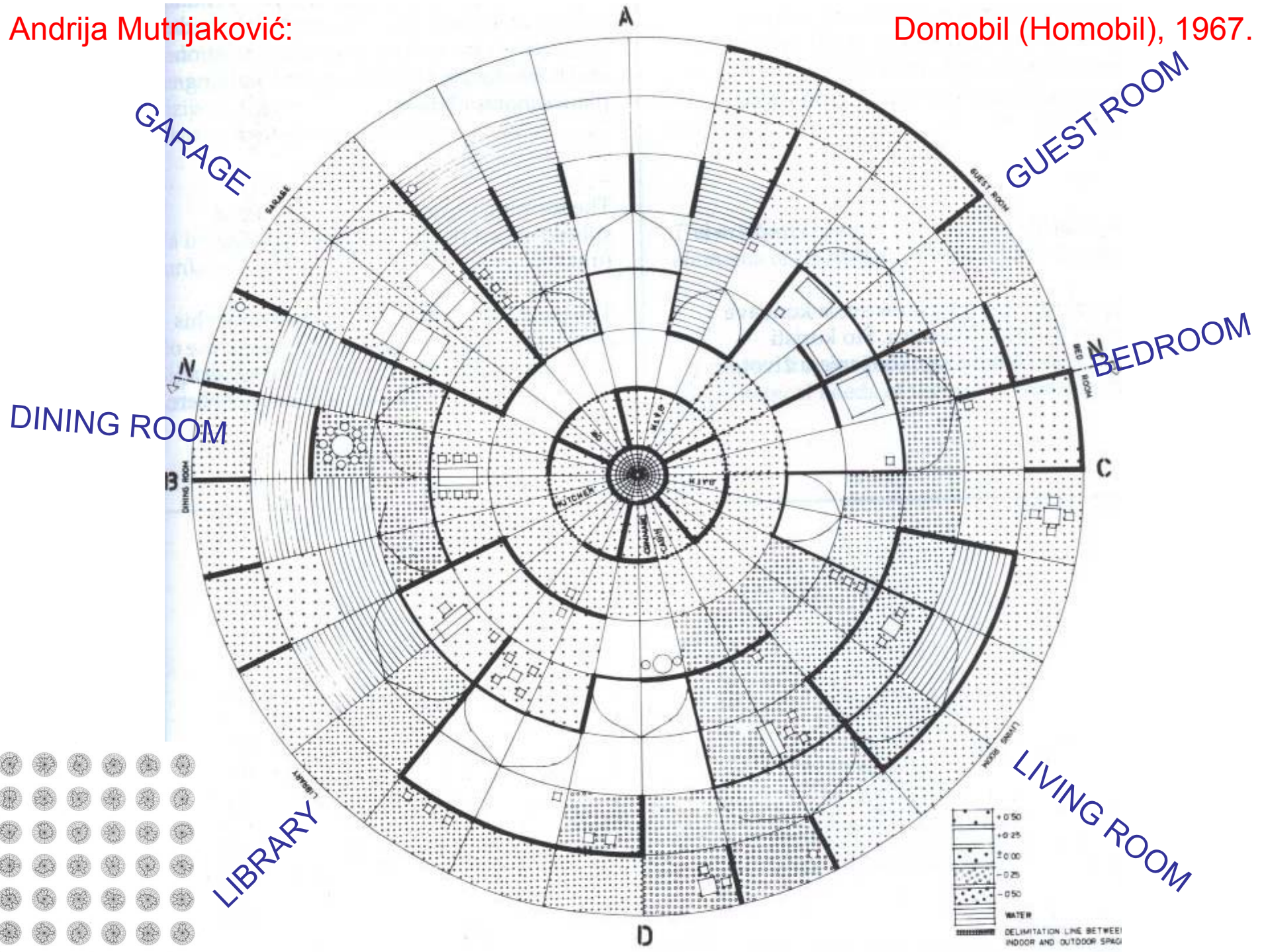
52* + 12* m2

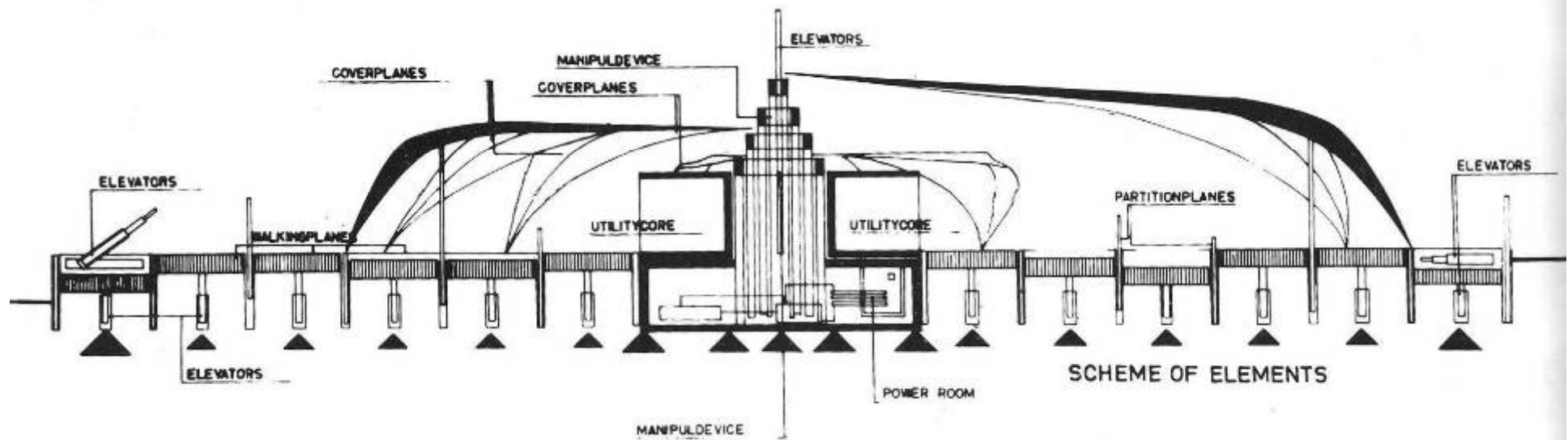


Juraj Neidhardt: SINTETIČKA KUĆA, 1966.

Andrija Mutnjaković:

Domobil (Homobil), 1967.





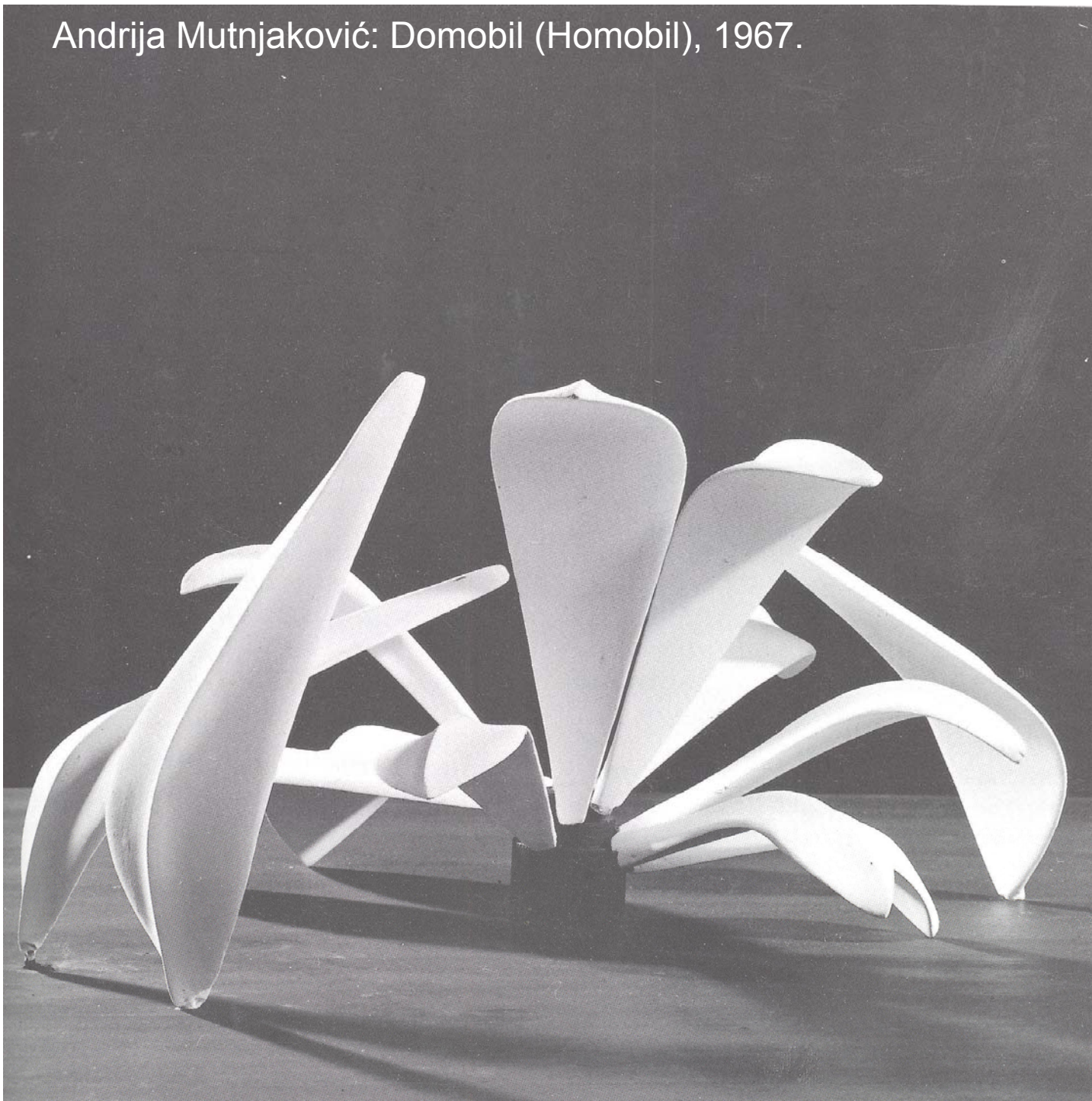
Andrija Mutnjaković: Domobil (Homobil), 1967.



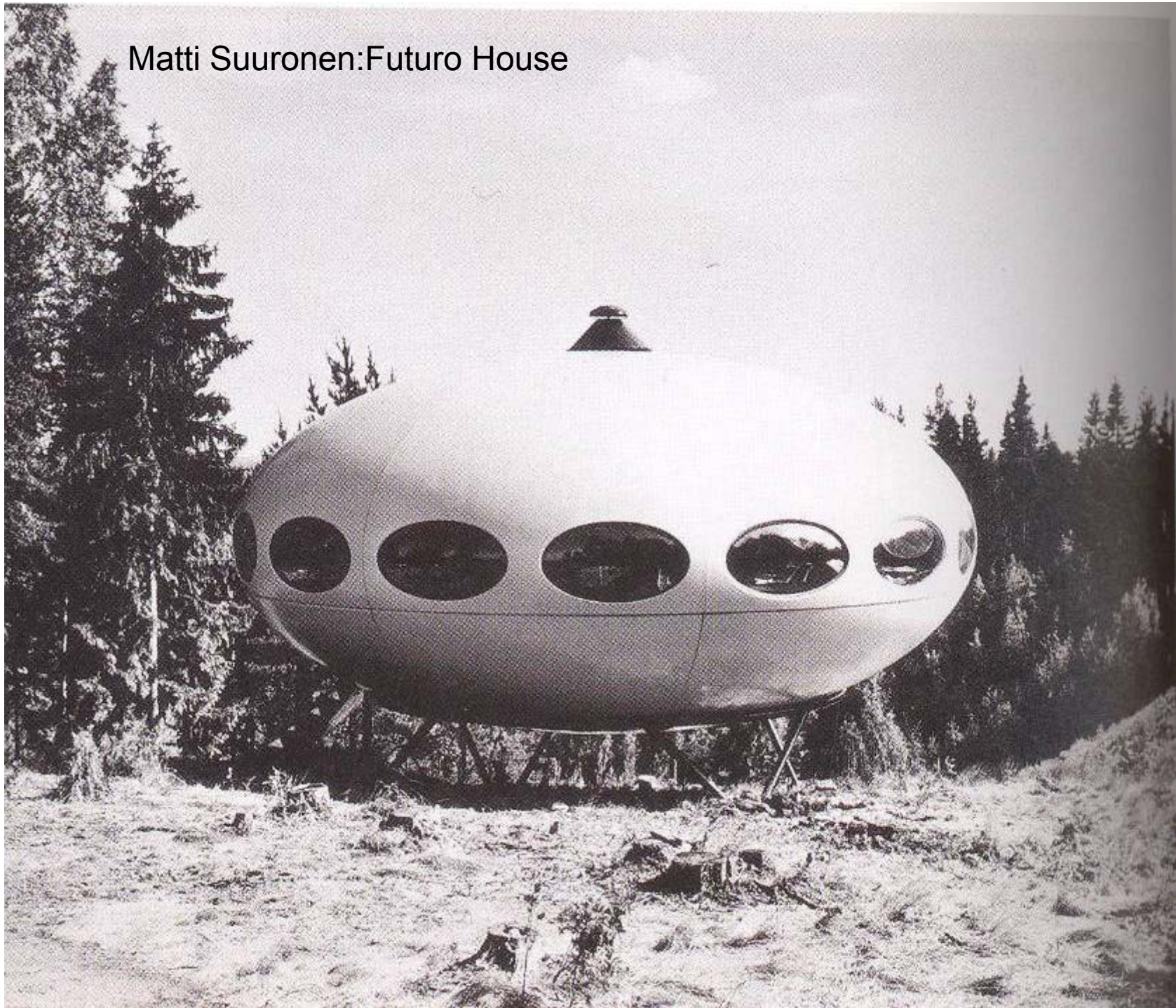
Andrija Mutnjaković: Domobil (Homobil), 1967.



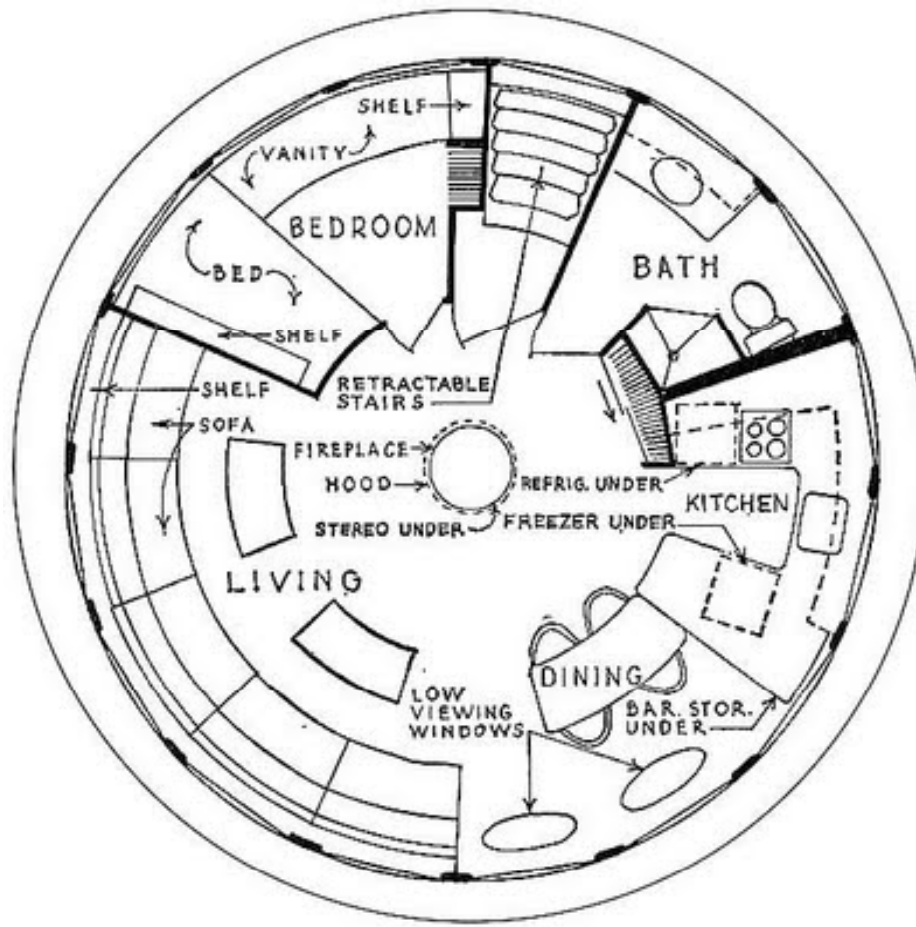
Andrija Mutnjaković: Domobil (Homobil), 1967.



Matti Suuronen: Futuro House



Futuro or **Futuro House**, is a round, prefabricated house designed by Matti Suuronen, of which about 100 were built during the late 1960s and early 1970s. The distinctive flying saucer like shape and airplane hatch entrance has made the houses popular among collectors. The Futuro is composed of polyester plastic and fiberglass, measuring about 3 meters high and 8 meters in diameter.



(cca 50 m2)

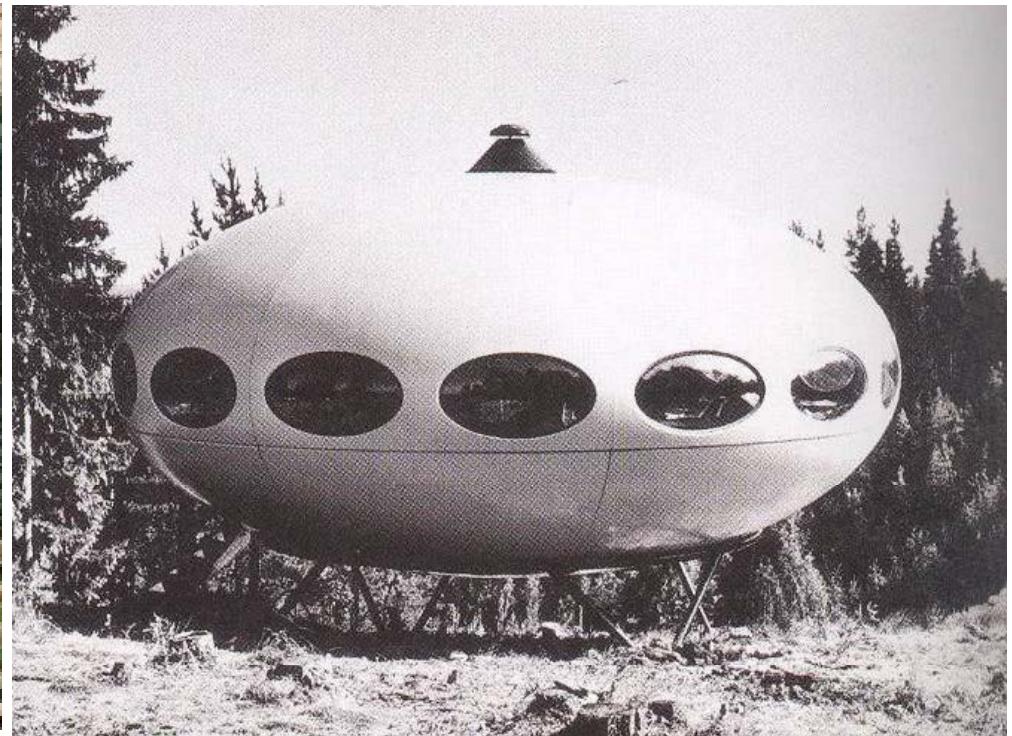






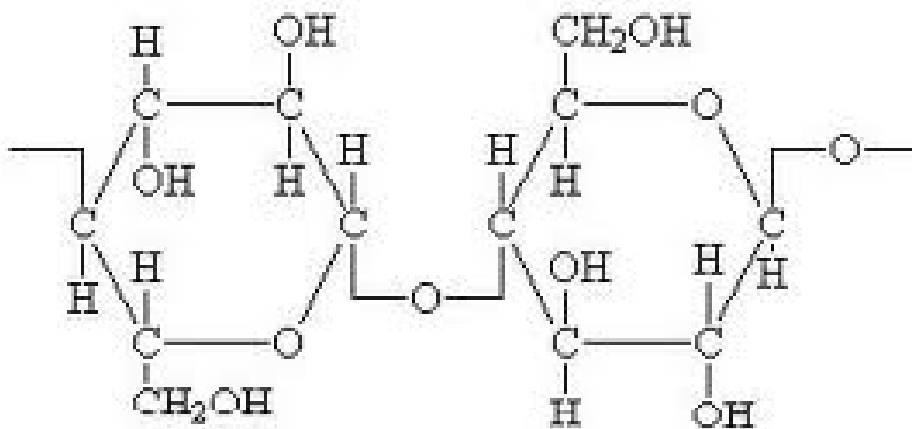
koliba/brvnara

-

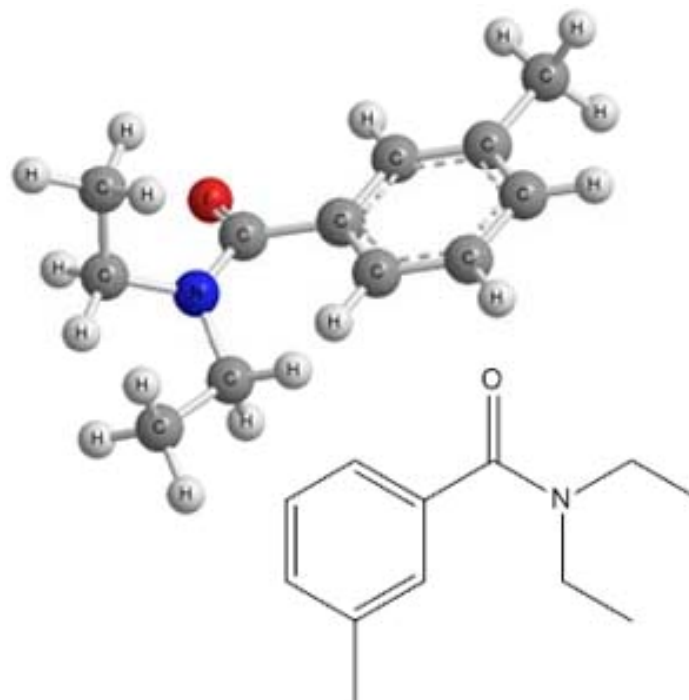
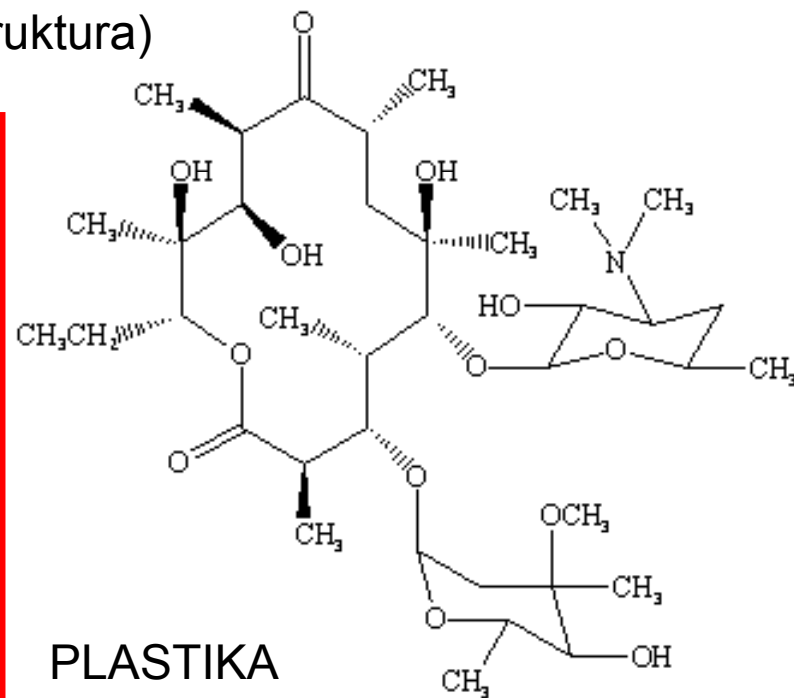


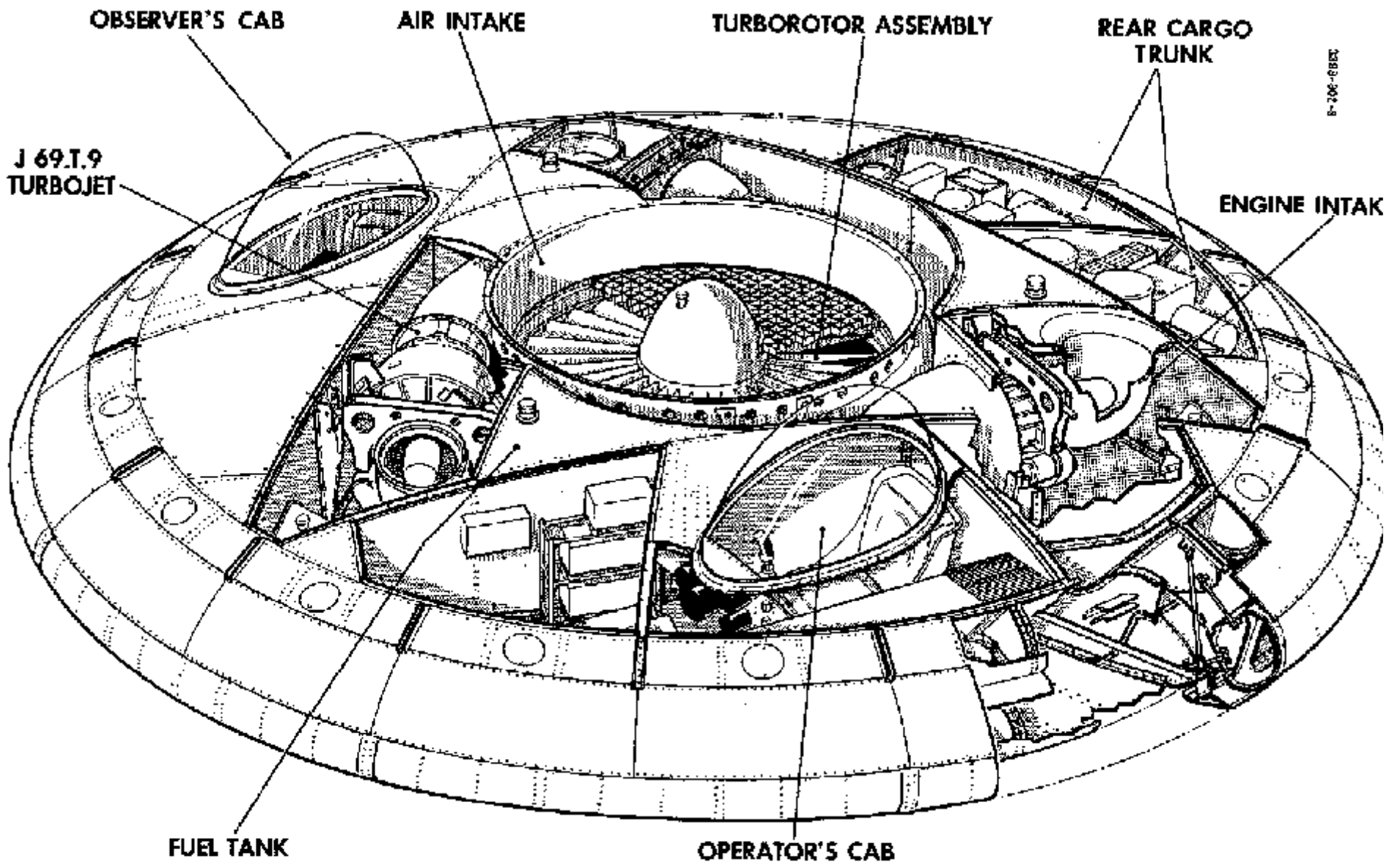
flying saucer/ space ship

(molekularna struktura)

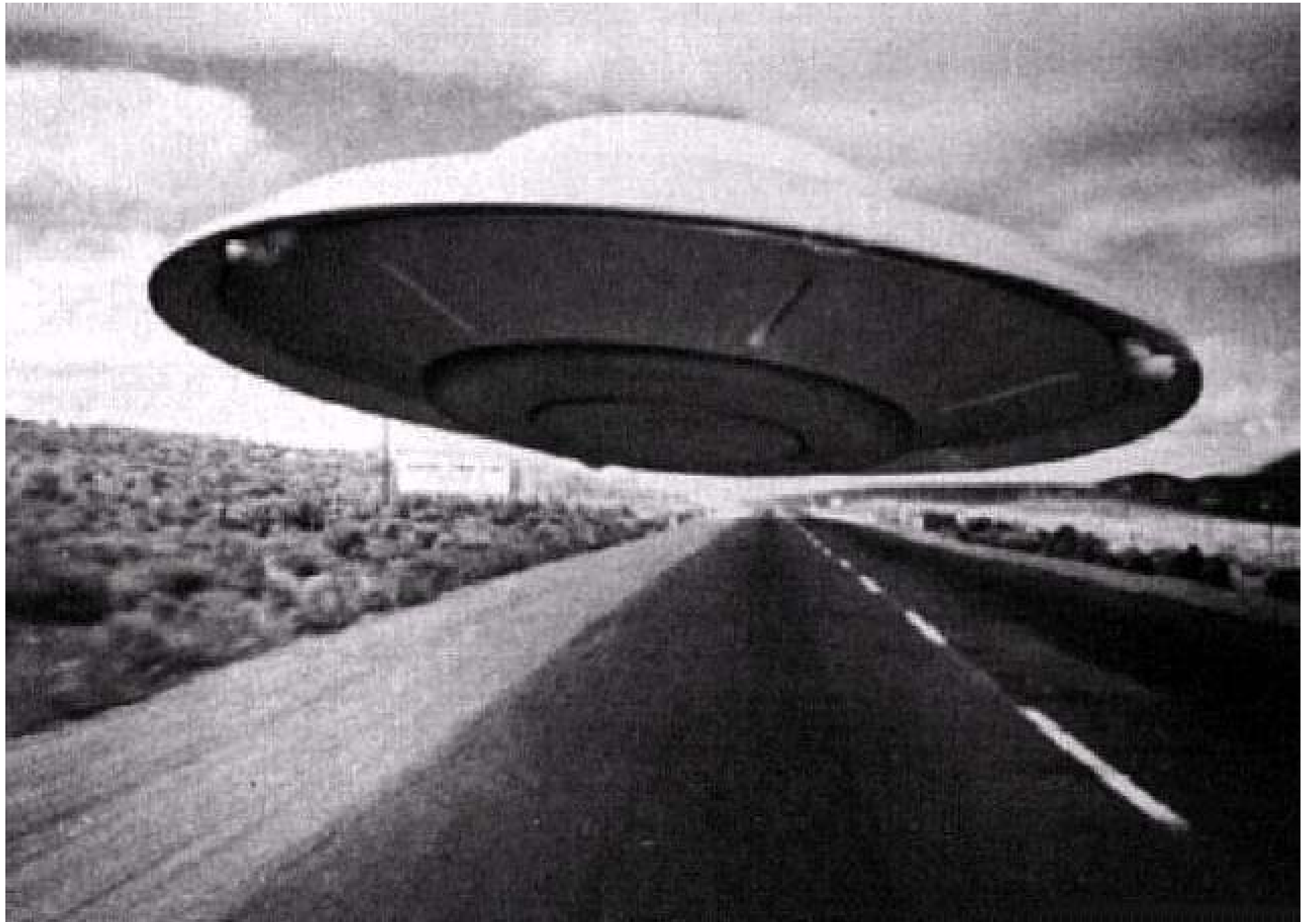


Cellulose
DRVO



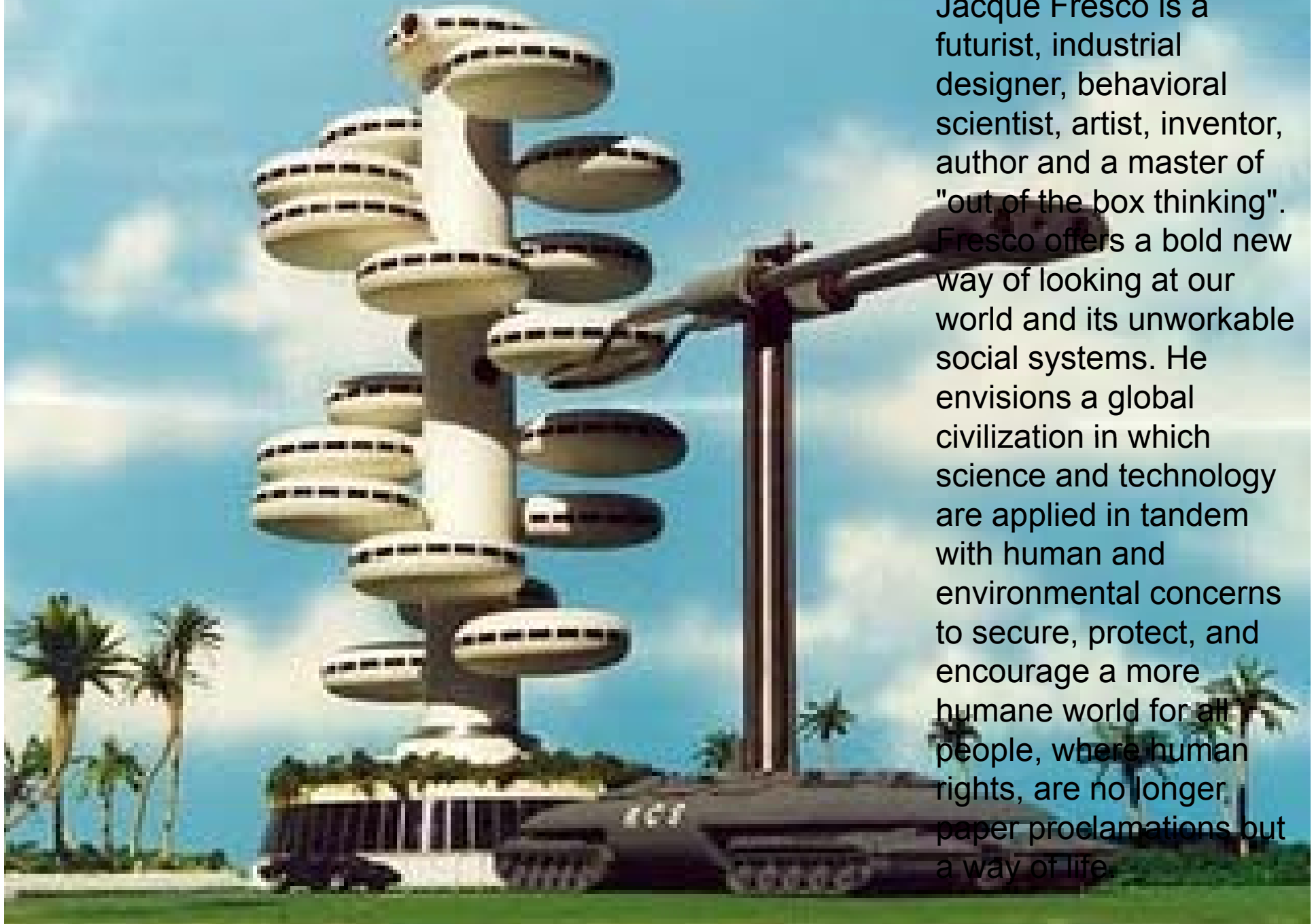


8-206-6883

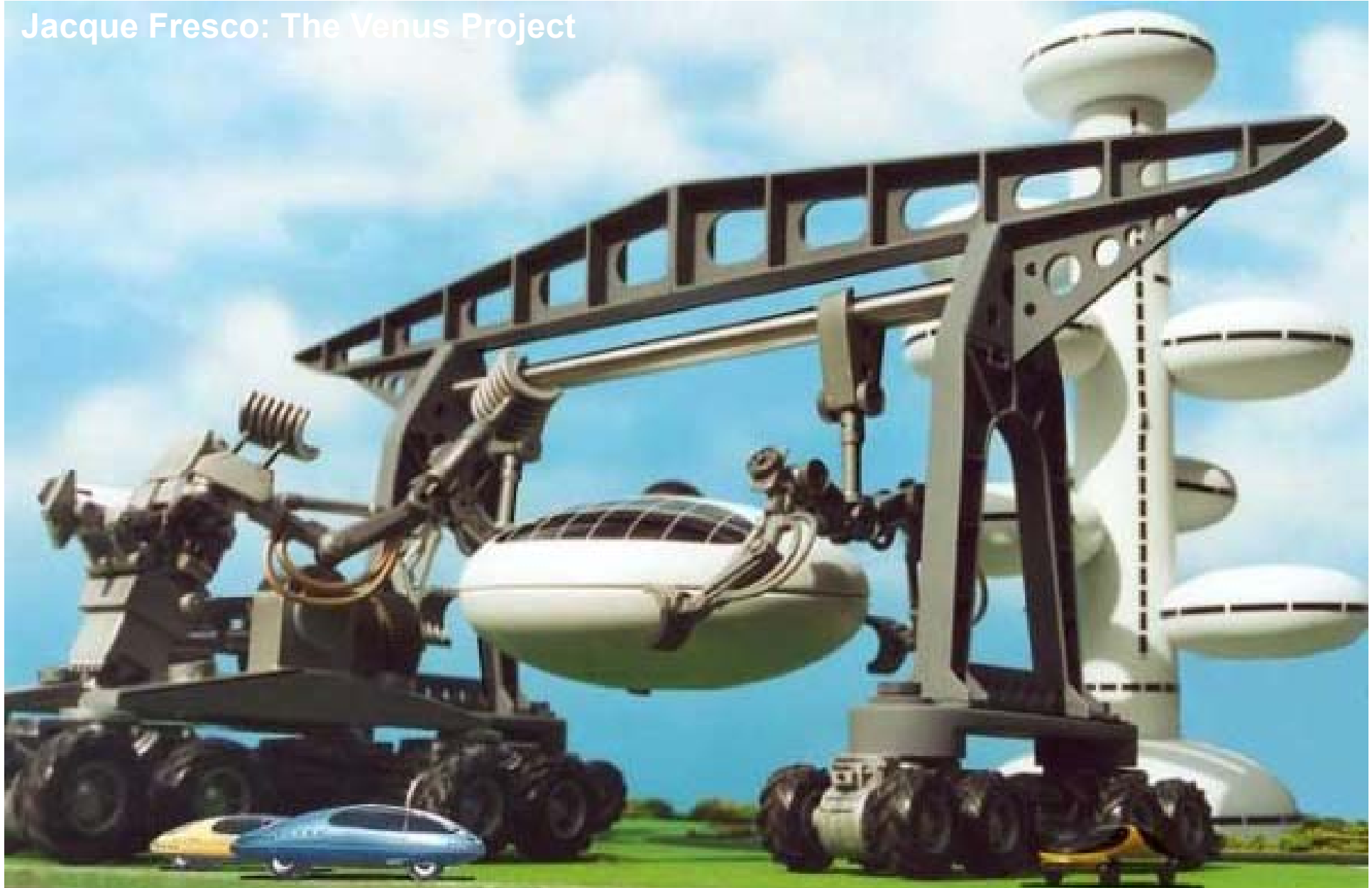


Jacque Fresco (b.1916)

Jacque Fresco is a futurist, industrial designer, behavioral scientist, artist, inventor, author and a master of "out of the box thinking". Fresco offers a bold new way of looking at our world and its unworkable social systems. He envisions a global civilization in which science and technology are applied in tandem with human and environmental concerns to secure, protect, and encourage a more humane world for all people, where human rights, are no longer paper proclamations but a way of life.



Jacque Fresco: The Venus Project

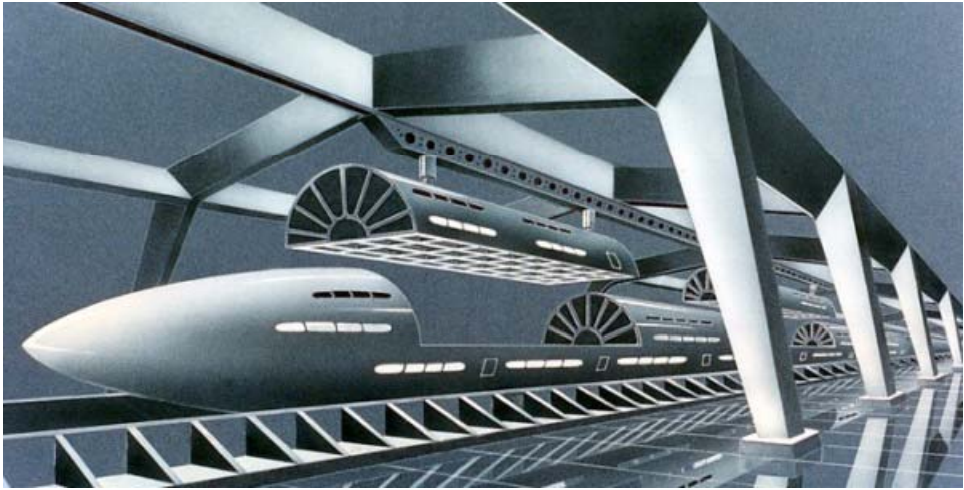
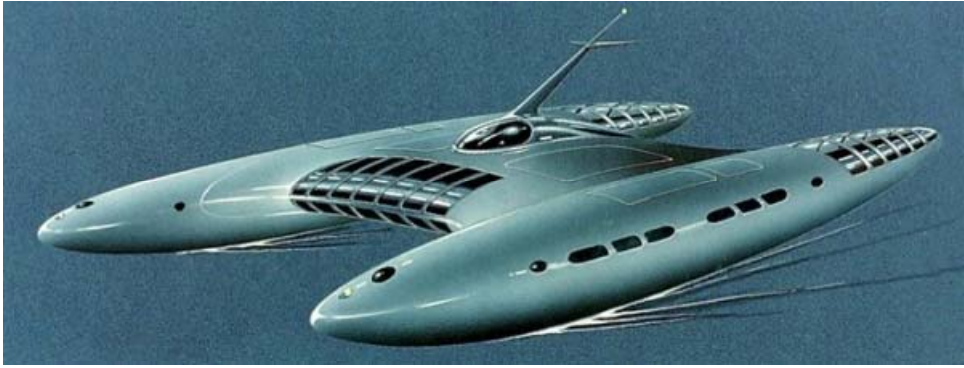


The Venus Project is an organization started by self-educated structural engineer , industrial designer and futurist [Jacque Fresco](#) (1995)

Looking Forward

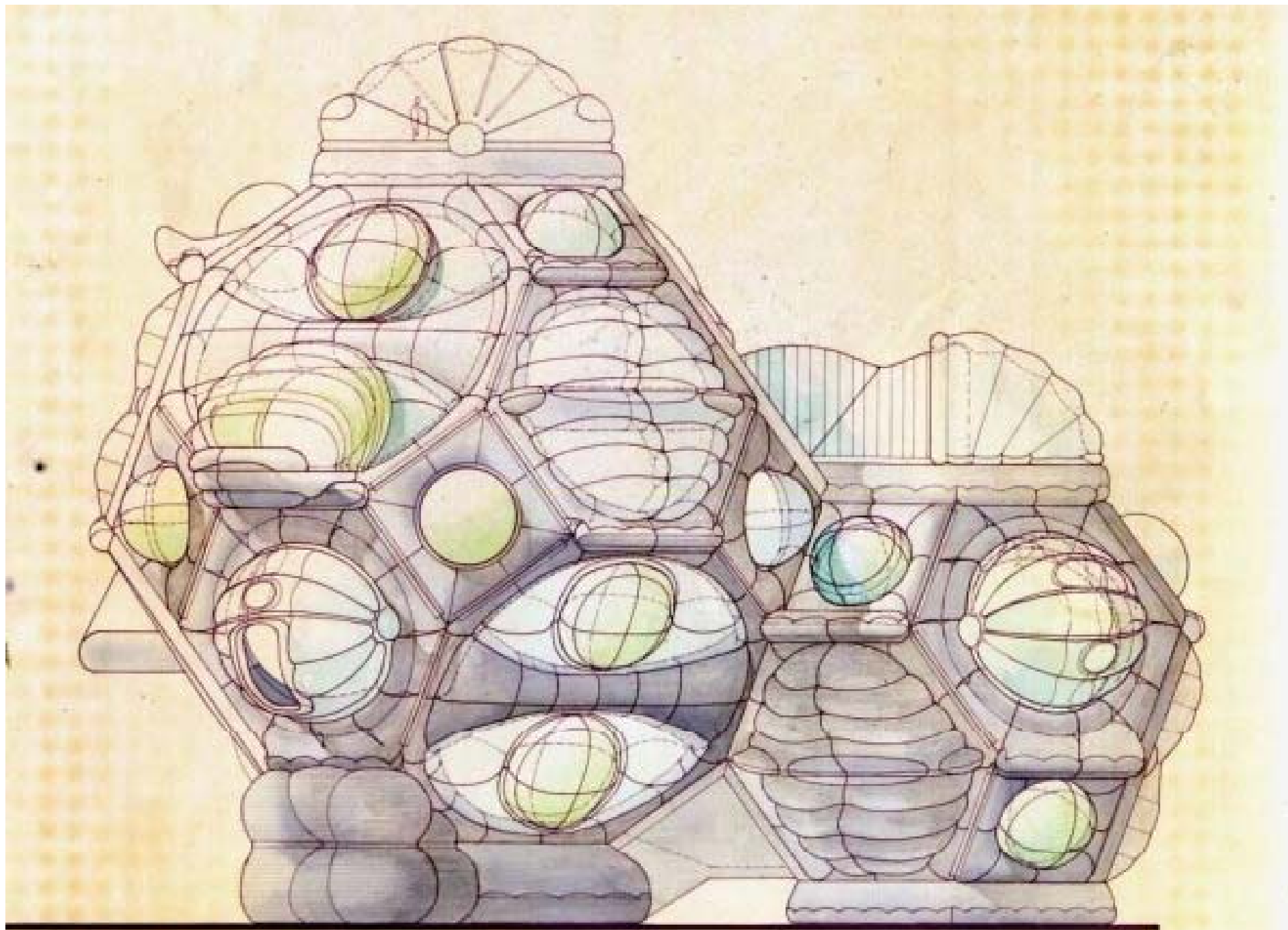
Kenneth S. Keyes, Jr. and Jacque Fresco



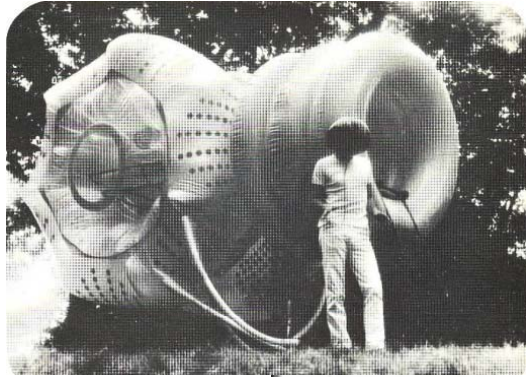




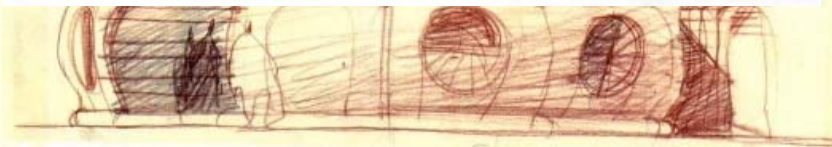
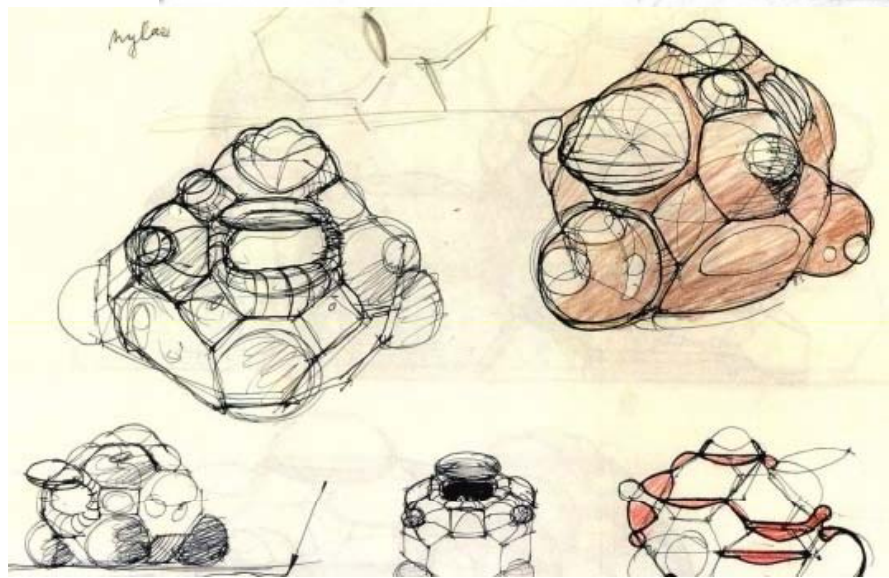
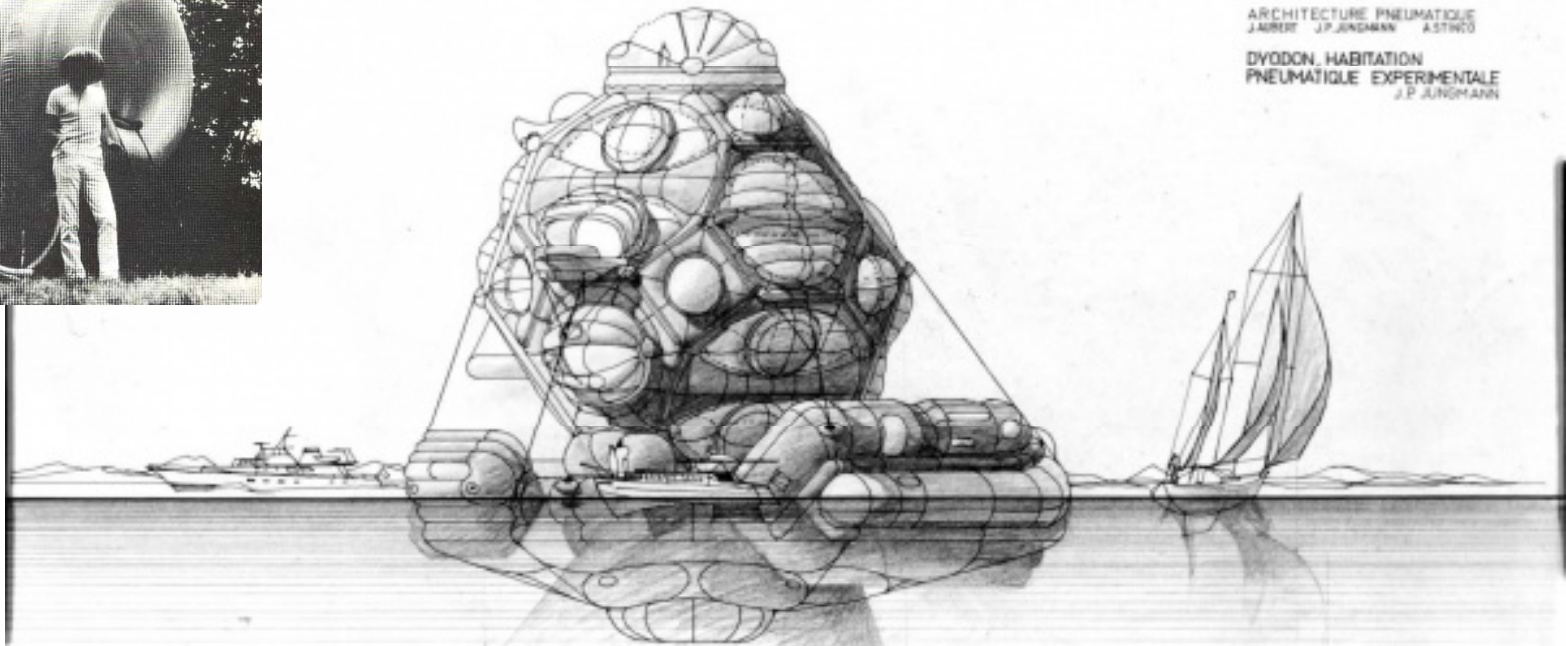
The Venus Project is a [copyright](#) term started in 1995 by Jacque Fresco and Roxanne Meadows in [Venus, Florida](#),



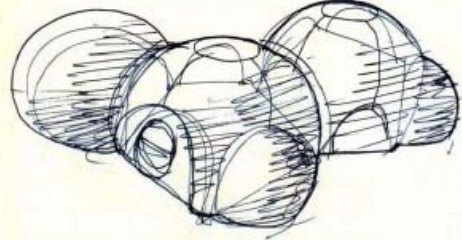
Jean-Paul Jungmann: eksperimentalna pneumatska kuća, 1967.



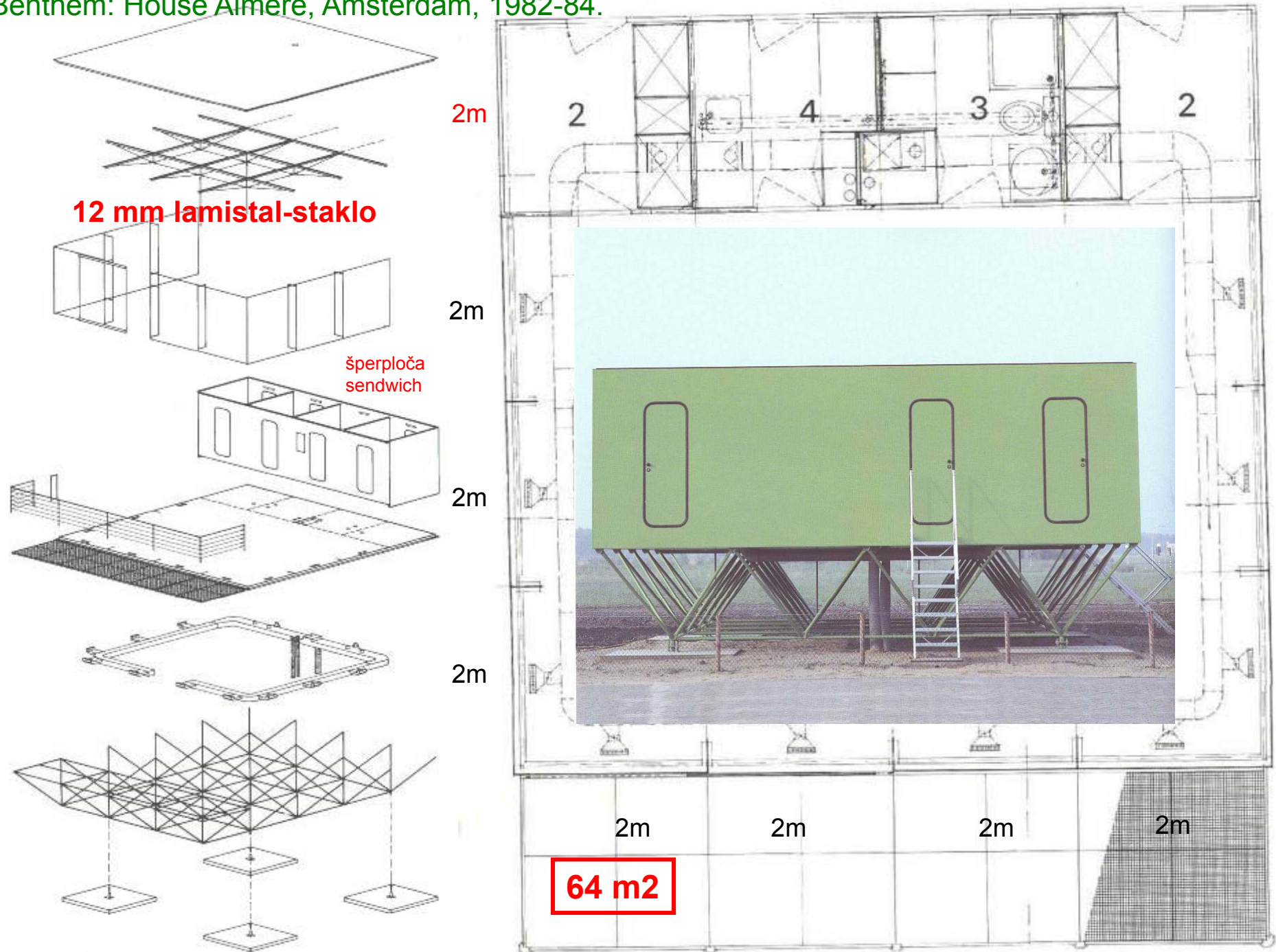
ARCHITECTURE PNEUMATIQUE
JAUBERT J.P. JUNGEMANN ASTINCO
DYODON, HABITATION
PNEUMATIQUE EXPERIMENTALE
J.P. JUNGEMANN



Le quartier: 4 parties homogènes
avec possibilité de s'ouvrir, de rester ou fermer complètement

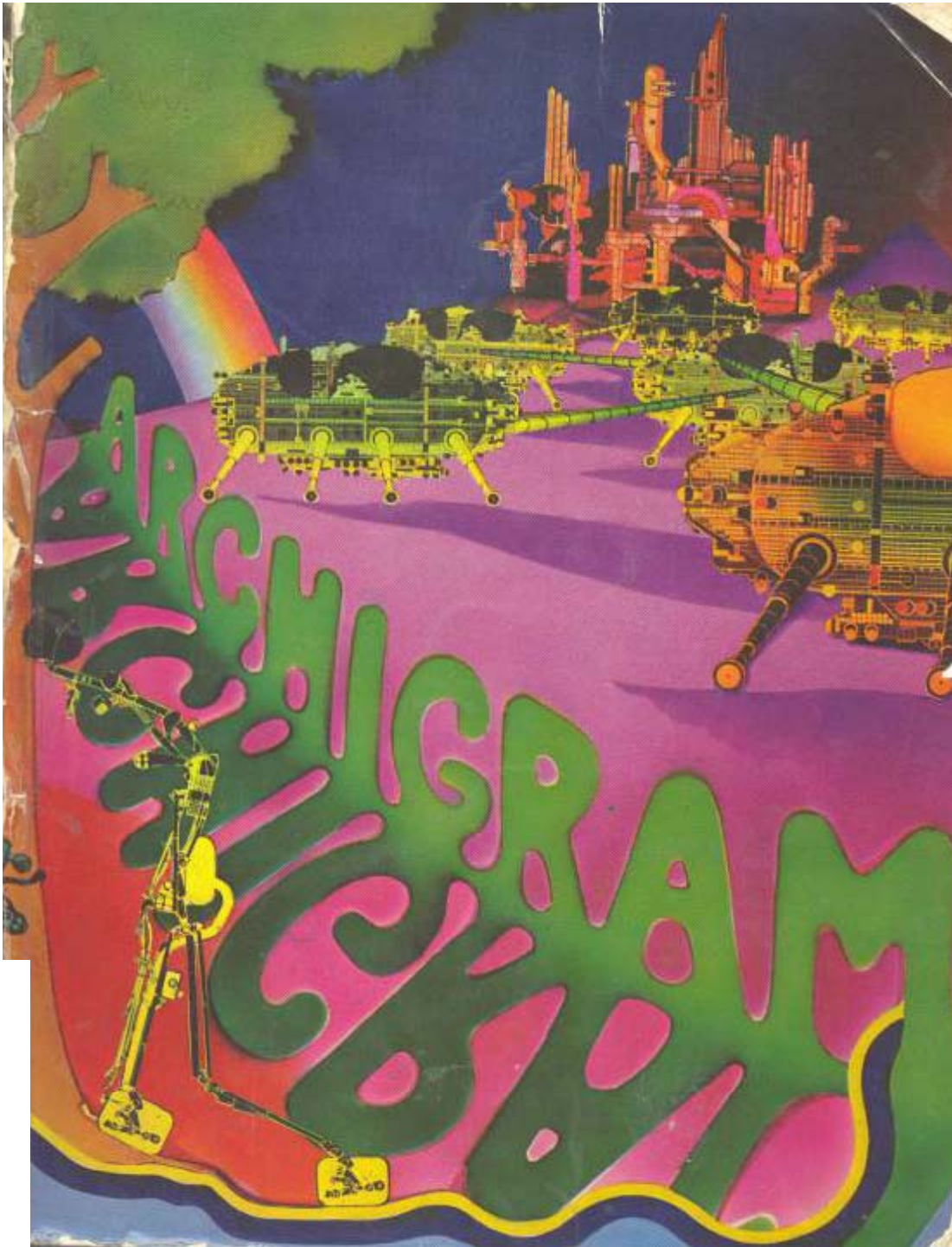


Bentham: House Almere, Amsterdam, 1982-84.



Bentham: House Almere, Amsterdam, 1982-84.





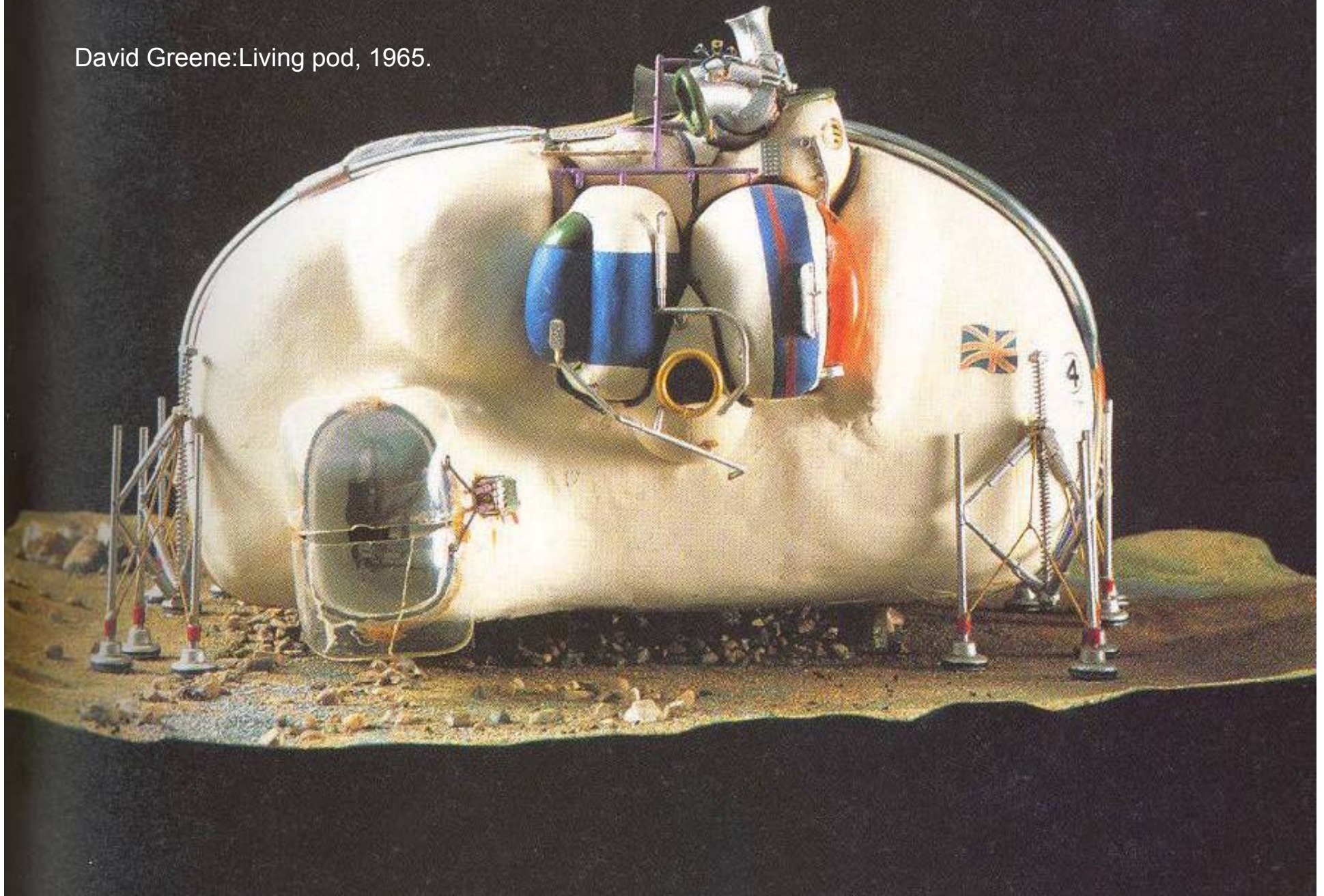
ARCHItectural
teleGRAM

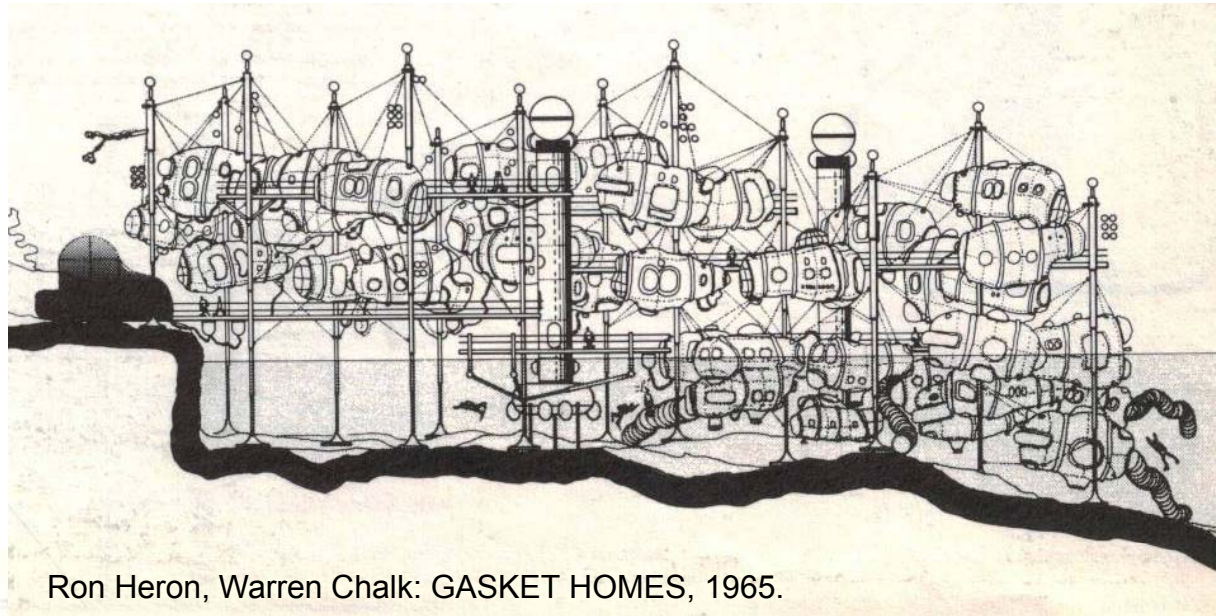
Warren Chalk
Peter Cook
Dennis Crompton
David Greene
Ron Herron
Mike Webb



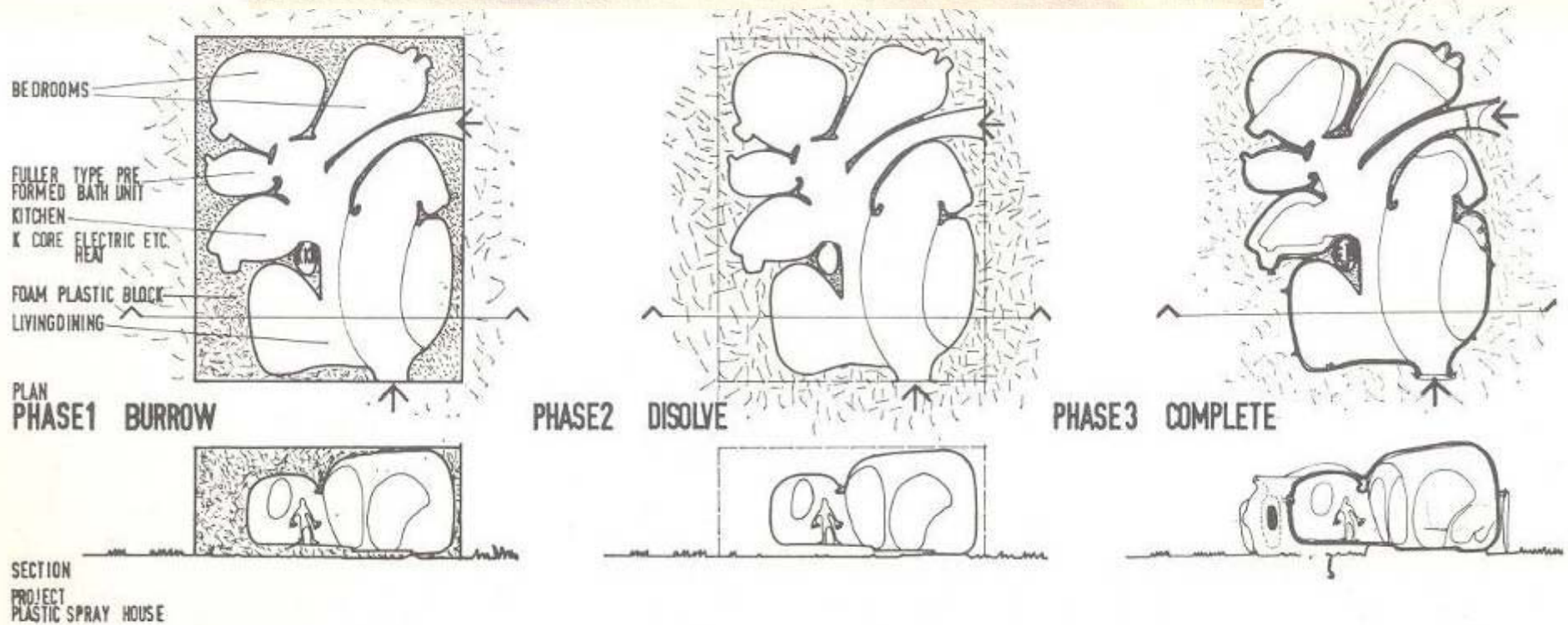
Kunsthau Graz, 2003

David Greene: Living pod, 1965.



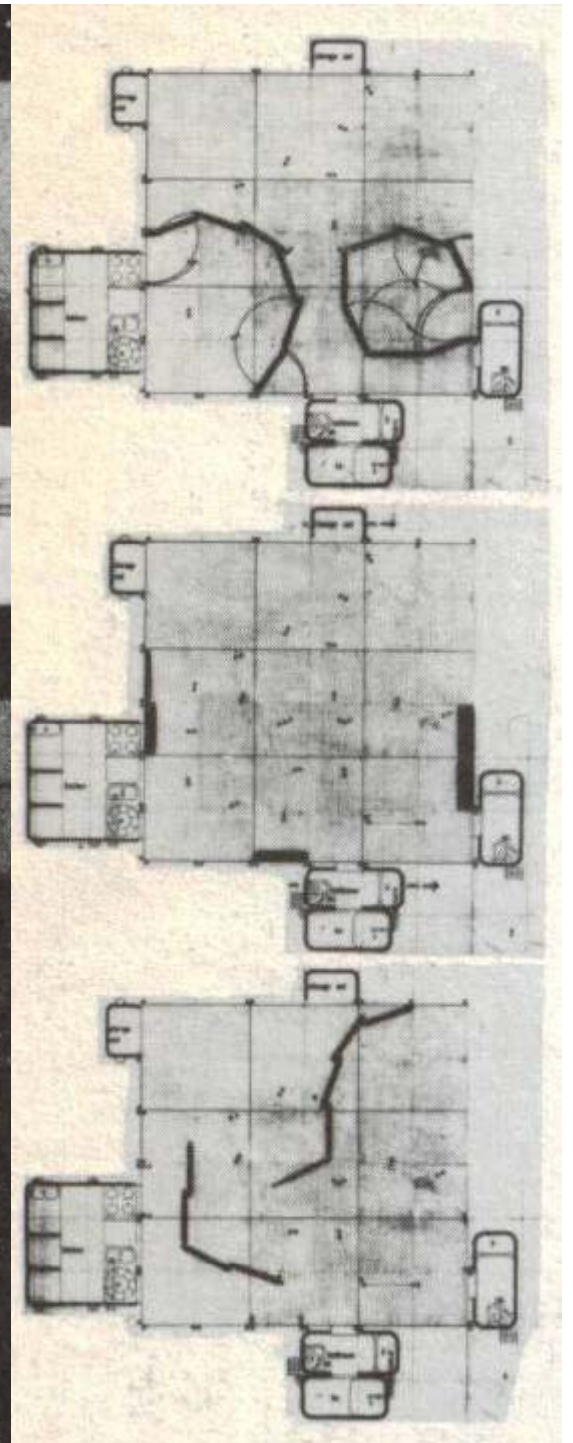
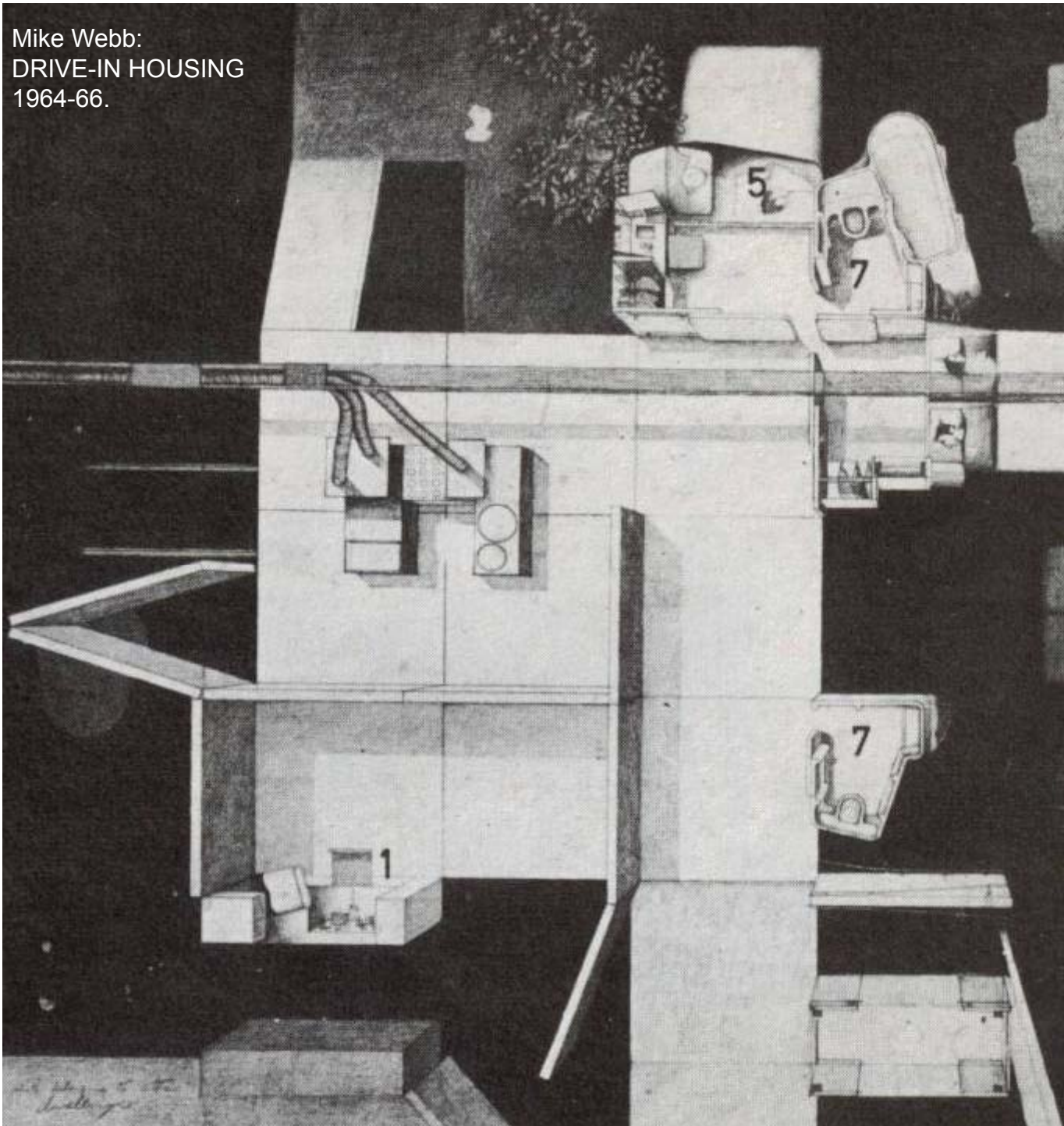


Ron Heron, Warren Chalk: GASKET HOMES, 1965.

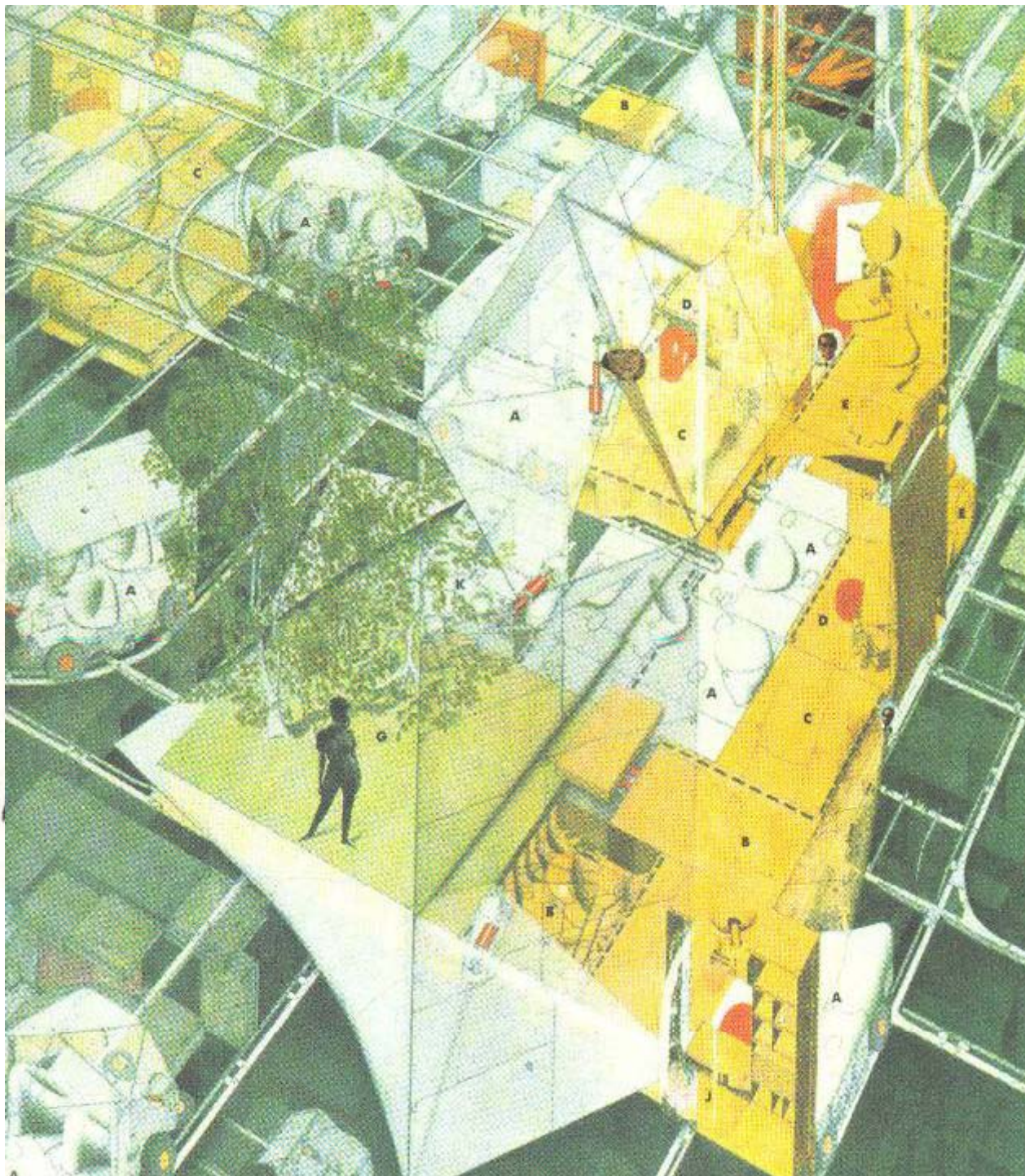


David Greene : Spray Plastic House, project, 1963.

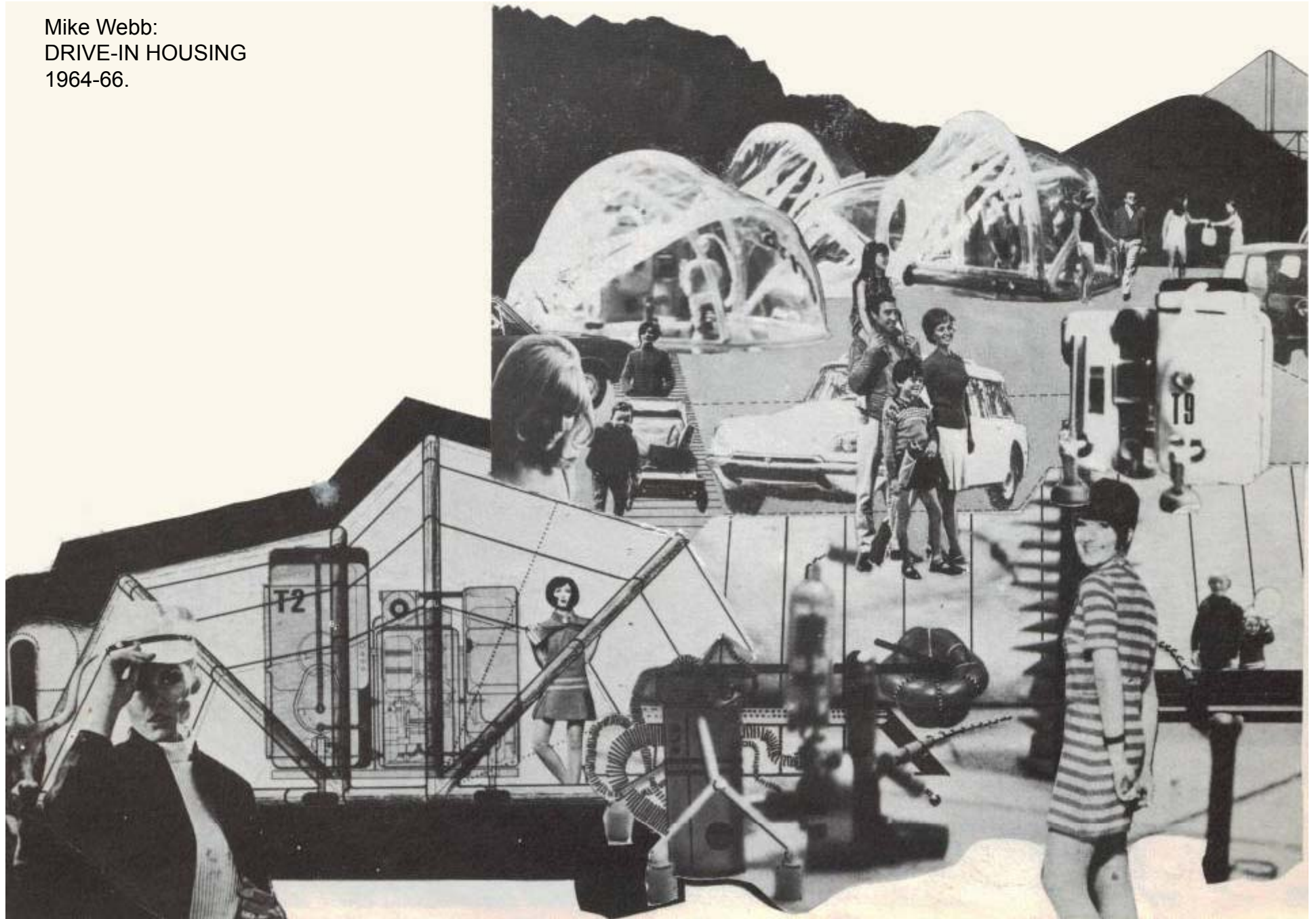
Mike Webb:
DRIVE-IN HOUSING
1964-66.



Mike Webb:
DRIVE-IN HOUSING
1964-66.



Mike Webb:
DRIVE-IN HOUSING
1964-66.

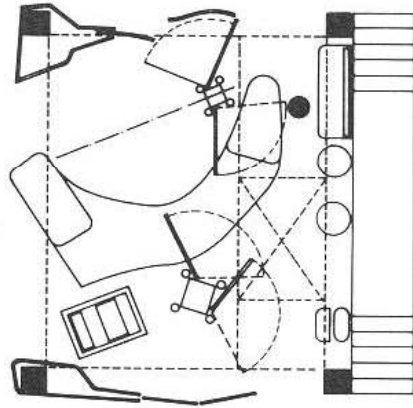
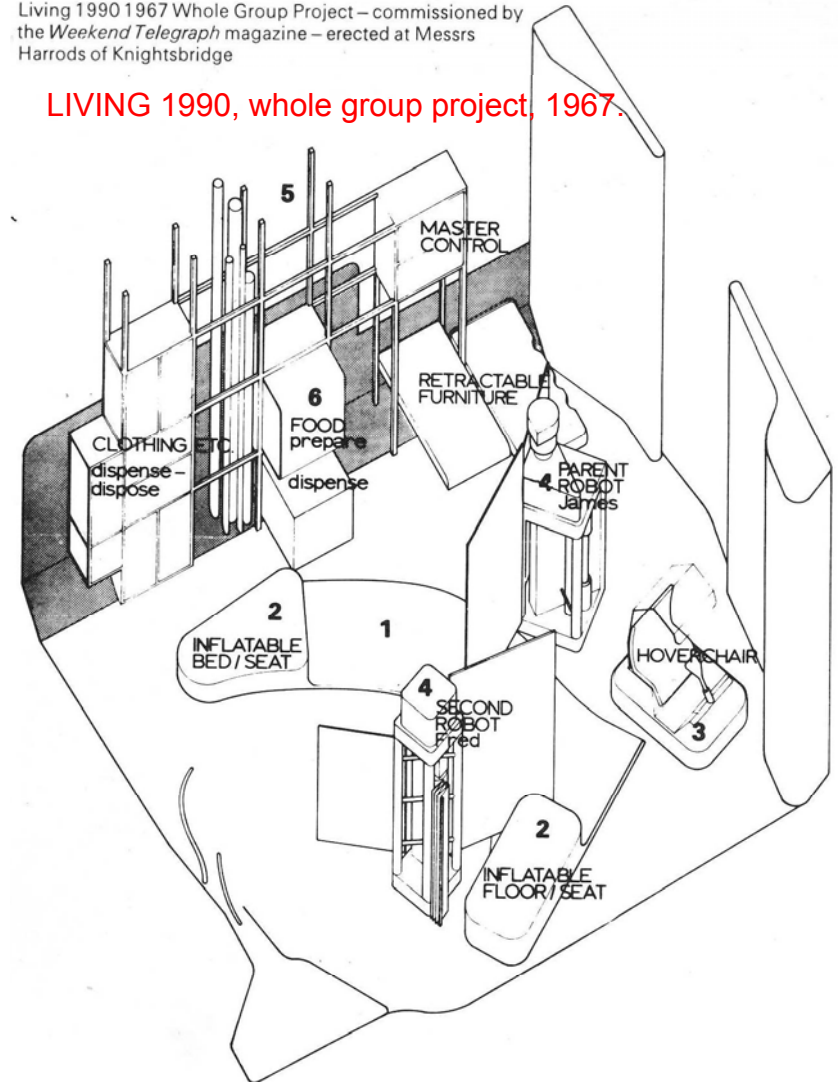


TELEGRAPH 1990

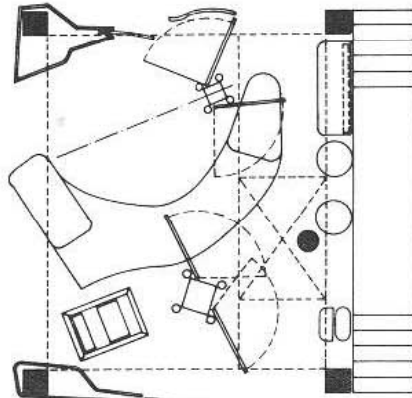


Living 1990 1967 Whole Group Project – commissioned by the *Weekend Telegraph* magazine – erected at Messrs Harrods of Knightsbridge

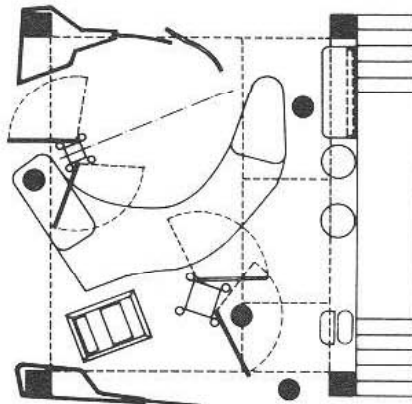
LIVING 1990, whole group project, 1967.



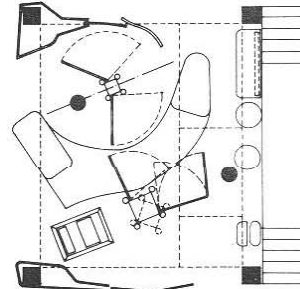
3am - 7:30am
sleep



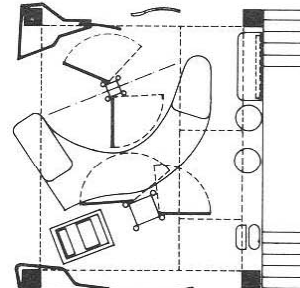
7:30am - 9am
breakfast



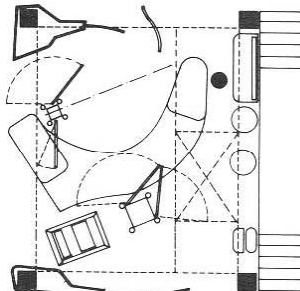
9am - 4pm
individual
activities



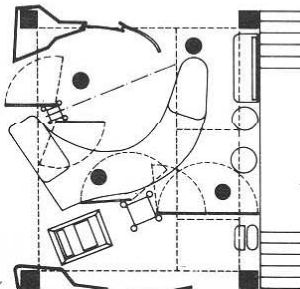
4:00pm - 6:30pm
children
tea/TV



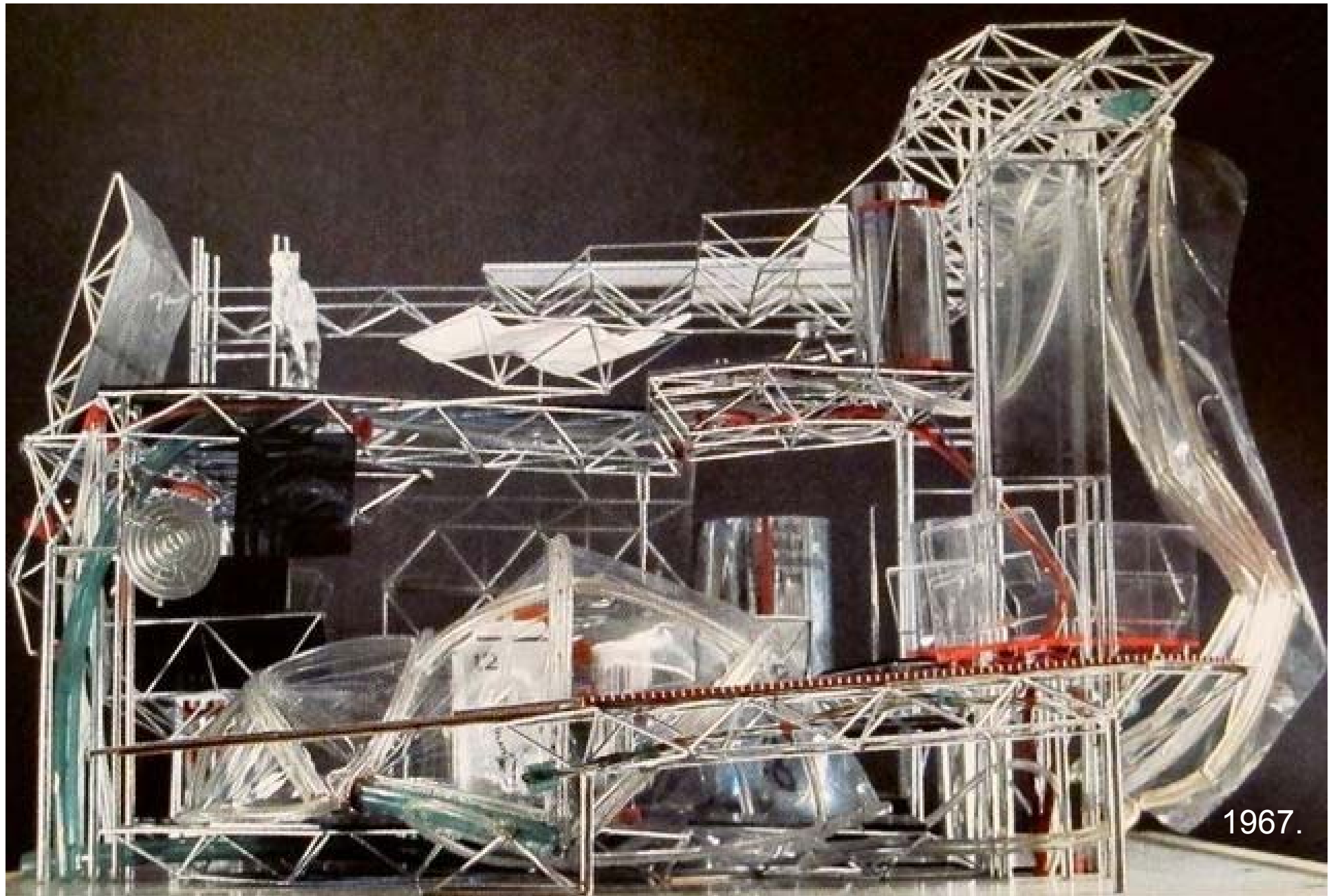
6:30pm - 8pm
teens/adults
activities



8pm - 10pm
dinner



10pm - 3am
party



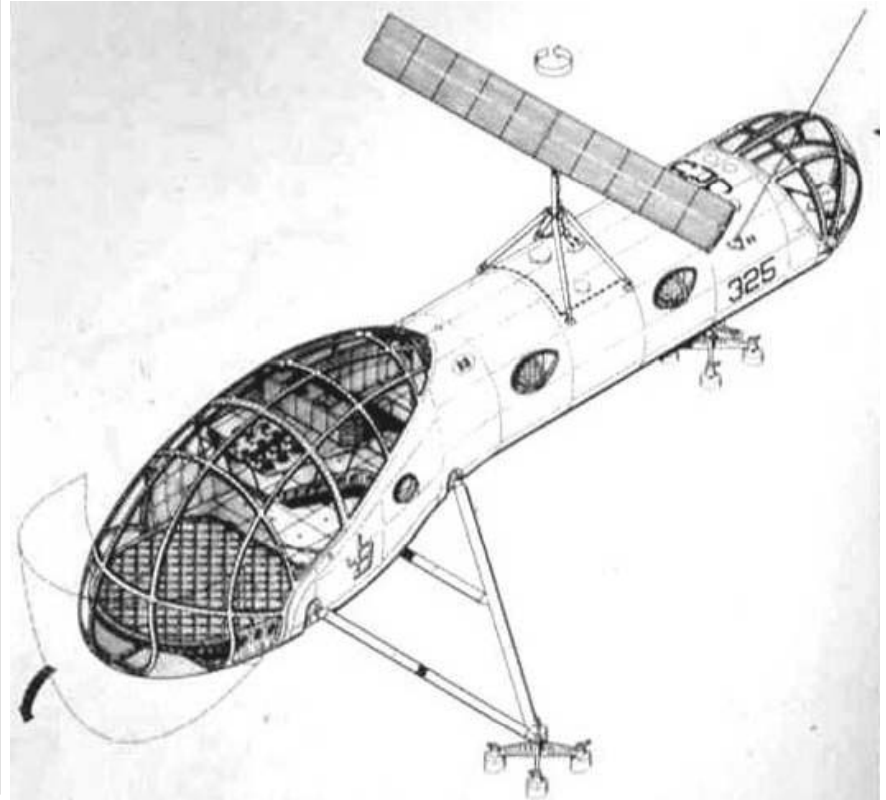
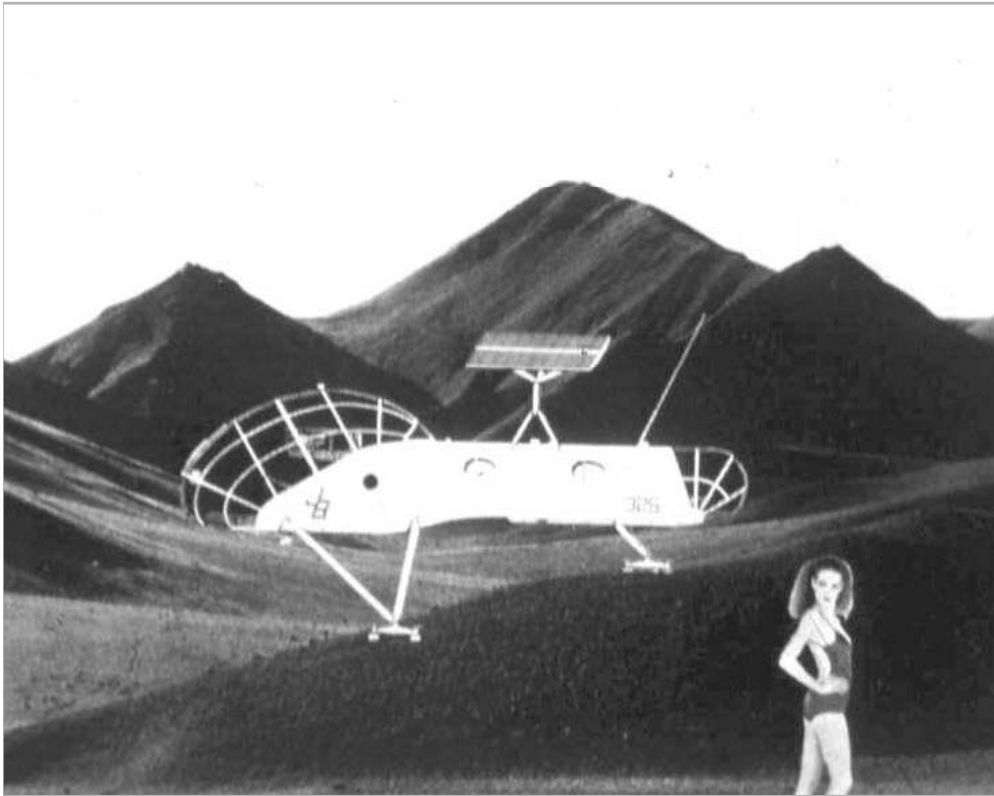
Peter Cook, Dennis Crompton, Ron Herron: CONTROL AND CHOICE, Housing study



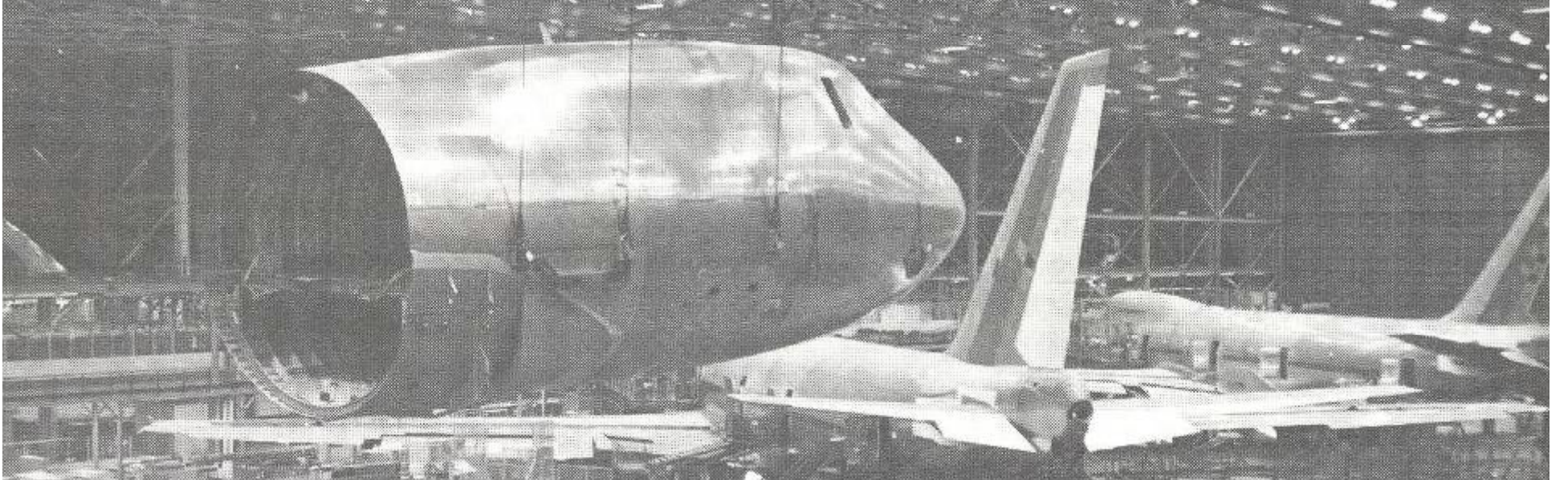
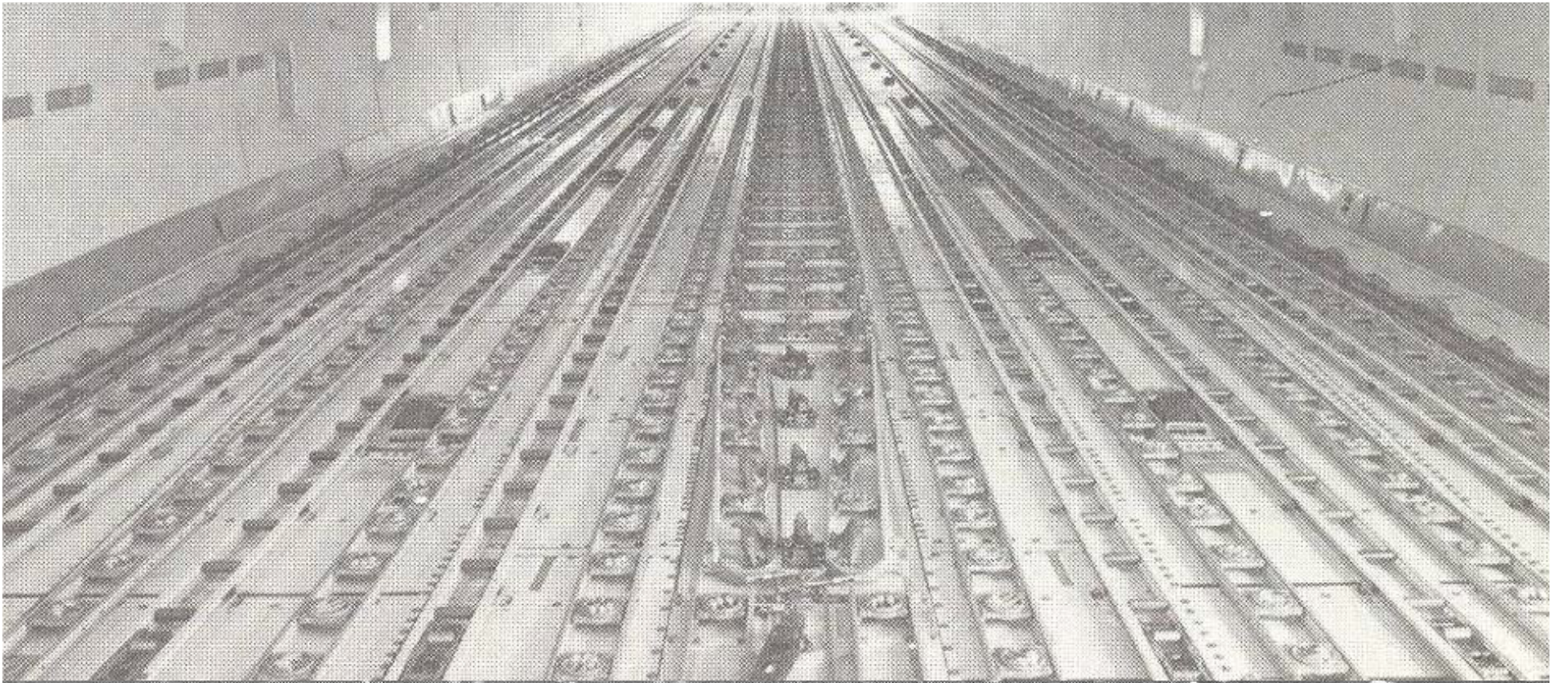
John Bachelor:strip EAGLE, 1930te



Bel Geddes Airliner No.4 (1929)



Future Systems (1980s)





Jurij Gagarin



12.IV,1961

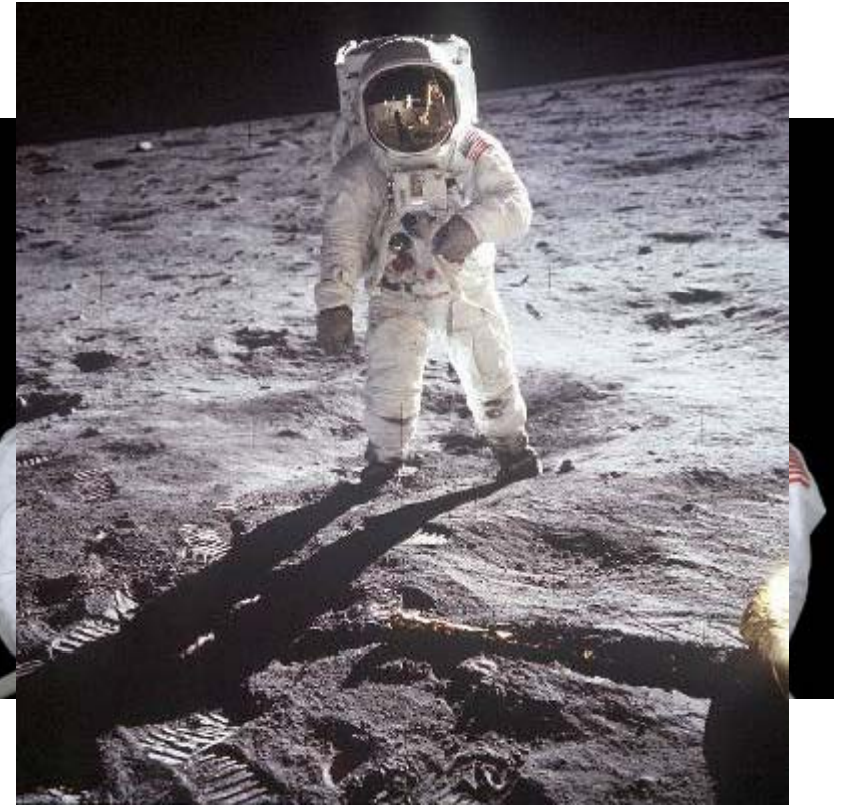
Apolo 11

Mission duration

8 d 03 h 18 m 35 s



Neil Armstrong,

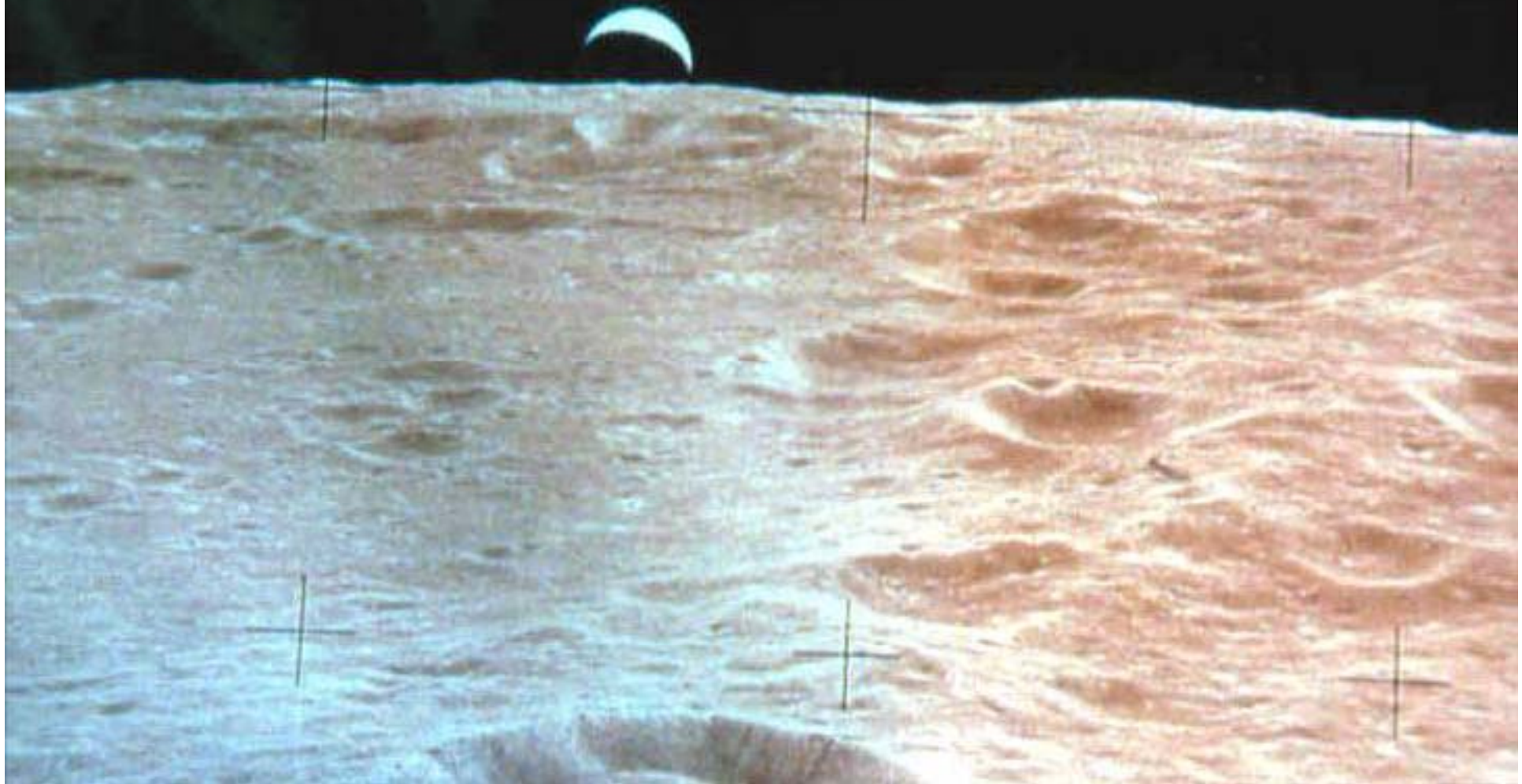


*“That's one small step for a man,
one giant leap for mankind.”*

16.VII,1969.

A total of twelve *men* have *landed* on the *Moon* :

Neil Armstrong, Buzz Aldrin, Pete Conrad, Alan Bean, Alan Shepard, Edgar Mitchell, David Scott, James Irwin, John W. Young, Charles Duke, Eugene Cernan, and Harrison Schmidt.



AEROGEL



Aerogel je izuzetan materijal, nalik smrznutom dimu koji ima najvisu vrijednost toplinske izolacije, najnizu gustocu, najnizu provodljivost zvuka, najnizi indeks loma svjetlosti i najnizu dielektricnu konstantu od svih danas poznatih cvrstih materijala. To je kruta tvar koja sadrzi 99,8 % zraka, što najbolje ilustrira podatak da blok aerogela velicine ljudskog tijela teži manje od pola kilograma.

Rezultati eksperimentalne primjene aerogela u graditeljstvu pokazuju kako ce to biti najlaksi gradevinski materijal i izuzetno kvalitetna sirovina za proizvodnju izolacijskih materijala. Zbog visoke transparentnosti imat ce znacajnu ulogu i u proizvodnji prozora i vrata, ostakljenih stijena i svjetlarnika.

