FUTURISTIC ARCHITECTURAL CONCEPTS THROUGH THE STUDY OF SCIENCE FICTION

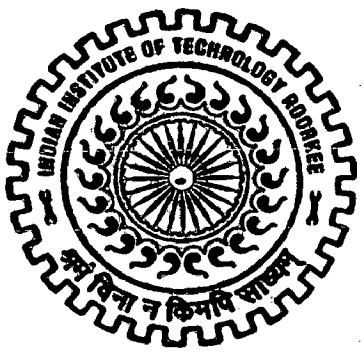
A DISSERTATION

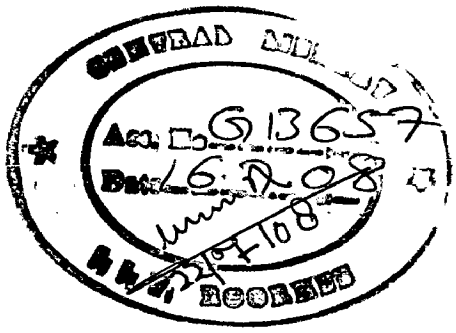
Submitted in partial fulfillment of the requirements for the award of the degree of

MASTER OF ARCHITECTURE

By

SUNNY THAKUR





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JUNE, 2007

CANDIDATE'S DECLARATION

I hereby certify that the work, which is being presented in the dissertation, entitled **FUTURISTIC ARCHITECTURAL CONCEPTS THROUGH THE STUDY OF SCIENCE FICTION** in partial fulfillment of the requirement for the award of the Degree of **MASTER OF ARCHITECTURE** submitted in the **Department of Architecture & Planning** of the Indian Institute of Technology, Roorkee is an authentic record of my own work carried out during the period from May 2006 to May 2007 under the supervision of **Prof. S.Y. Kulkarni & Dr. P.S. Chani.**

The matter embodied in this dissertation has not been submitted by me for the award of any other degree.

Place: Roorkee
Dated: June 29, 2007

(SUNNY THAKUR)

CERTIFICATE

This is to certify that the above statement made by the candidate **SUNNY THAKUR** is correct to the best of my knowledge.

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The acknowledgements will not be completed till I express my regards and thanks to my Parents for their blessings and prayers for their encouragement and support.

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ABSTRACT

It is very fascinating to imagine future, the advanced societies, systems and spaces we would be living in; even just a thought of it gives satisfaction. Looking at other side of the coin one can comprehend the troubles and wretchedness that future would bring along with gratification and pleasure.

The dystopian realm exemplified in works of fiction throws light on the issues of futuristic architecture and society. Most of these issues are basically the calculated projections of the present society. The toughies of the architecture of tomorrow can be taken care of by understanding and analyzing the imaginations of various visionary architects, writers, and film makers, and by apprehending the sync of technological promotions with the possible potential solutions.

The thesis is an attempt to understand the diverse issues of architecture of tomorrow through review of literature. Analyzing sights of various visionaries and drawing up the results in form of concepts.

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The future can be many things; but one thing it couldn't be is dull

- RACHEL ARMSTRONG

CHAPTER - 1

INTRODUCTION

1.1 BACKGROUND

Human beings by nature like changes, and change is what drives them to explore new possibilities of shaping their destiny.

Artists, visionaries & thinkers, to satisfy the inherent inclination of humans towards change, portray their vision through various mediums. They all search for other disciplines for inspiration ranging from nature, man, and science. Any scientific projection of nature or man advocates the future; one cannot shun the vision of the prophets, writers, and thinkers because their visions have become sight of today's generation.

Architects as well typically search other disciplines for inspiration and the world of science and science fiction are a popular source. Science fiction of all the generation showcases tremendous potential in exhibiting the futuristic societies, behavior, and technology. Science fiction genre uses the real world as the starting point and creates alternative, radically different and hypothetical worlds, inspired by the conventions of science.

One generation's ground breaking science-fiction usually becomes the accepted norm of the next. Advances in materials and techniques over the century have eventually caused that which years ago were set firmly in the realms of the imagination to become reality.

As applied to architecture, science fiction is an imaginative form of design that interprets a fictional vision into a strategy for approaching a new problem, or inventing for future communities.

The inspiration that science has offered to creative practices is its promise to give modern society the power to control its environment and in doing so, to shape its destiny. But there is a yawning gap between fiction and reality, this gap is normally identified as a transition. Technology is what can fill this transition, and can advocate the absolute overlap of reality over fiction.

Technological advancements are constantly pushing the boundaries of engineering and architecture; broadening the canvas on which these fields were performed. Technologies that will affect the boundaries of architecture –

- Information Technology
- Digital Technology
- Wireless Technology
- Nanotechnology

Digital technology and Information technology may have changed our lifestyle over the last decade, but so far they have had very little impact on our dwellings. As the technologies insinuate themselves into every aspect of our life, there is an urgent need to address our most private realm, where we surround ourselves with families, friends, and assets.

1.2 AIM & OBJECTIVES

The study aims at finding the solution for the issues of futuristic urban environment; by analyzing Architectural impressions in science fiction.

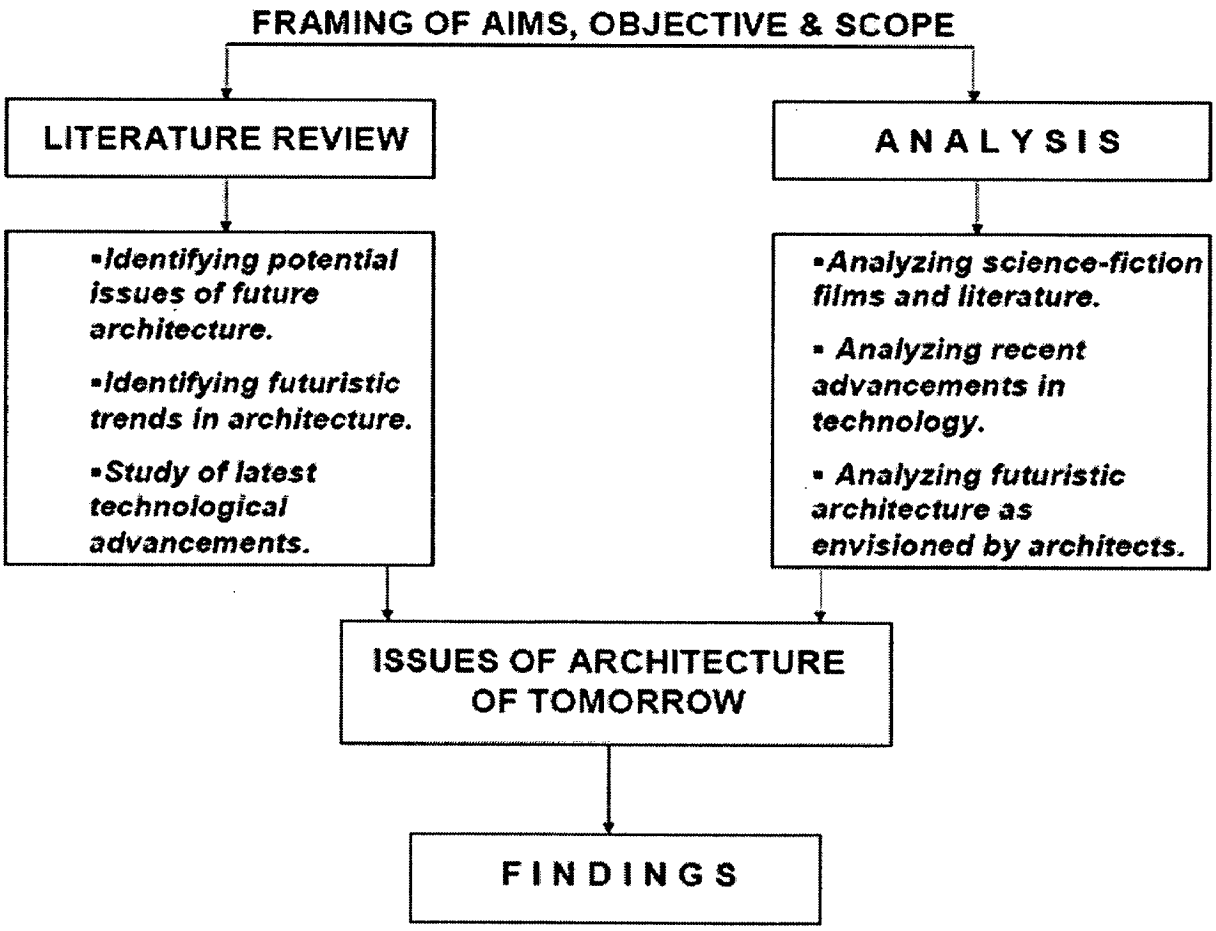
Keeping the aforementioned aim in view the following objectives have been identified to be analyzed in science fiction.

- To identify potential issues of the future from literature review.
- To analyze sci-fi (*visual & printed*) media in which architecture play a important role.
- To recommend the solution for the issues of the future.

1.3 SCOPE & LIMITATIONS

- The study provides to understand the futuristic impressions of architecture in science fiction.
- The dissertation aims at analyzing such approach and its significance in evolving new architectural concepts.
- The study will advocate the analysis of science fiction (futuristic) Hollywood movies – primarily in English, and also sci-fi novels
- The study will conclude at finding the solutions for the issues of future.

1.4 METHODOLOGY



Prediction is very difficult, especially of the future!

- NIELS BOHR

CHAPTER – 2

FUTURISTIC ARCHITECTURE & SCIENCE FICTION

2.1 FUTURISTIC ARCHITECTURE

Futurist architecture (or Futurism) began as an early-20th century form of architecture characterized by anti-historicism and long horizontal lines suggesting speed, motion and urgency. This artistic movement started in Italy and lasted from 1909 to 1944. It was animated by the poet Filippo Tommaso Marinetti, and works by notable figures such as architect Antonio Sant'Elia and the artists Umberto Boccioni, Giacomo Balla, Fortunato Depero, Enrico Prampolini. Futurist forms suggest speed, dynamism and strong expressivity, in an effort to make architecture belonging to modern times.

After its inception, Futurism has become a more generic word to designate the broad trend in modern design which aspires to create a sort of prophetical architecture, thought to belong at least 10 years into the future. Modern futurism largely began with the car culture-inspired Googie architecture of 1950s California and subsequent Space Age trends. Futurism is not a style but an open approach to architecture, so it has been reinterpreted by different generations of architects across several decades, but is usually marked by **striking shapes**, **dynamic lines**, **strong contrasts** and use of **advanced materials**.

Futurist architecture, as with most other art forms, first appeared in the written word, rather than as a practical example, in the *Manifesto of Futurist Architecture* by **Antonio Sant'Elia**, published in *Lacerba* on 01 August 1914.

interconnected and integrated urban conurbation designed around the "life" of the city. *"... the street will no longer lie like a doormat at ground level, but will plunge many stories down into the earth, embracing the metropolitan traffic, and will be linked up for necessary interconnections by metal gangways and swift-moving pavements."*

Antonio Sant'Elia was killed in 1916 but his visionary perception of a new modern metropolis inspired generations of young architects and designers, not least of whom Virgilio Marchi proposed architecture as "habitable sculpture" and a "machine for living in".

Fortunato Depero, the Futurist graphic designer and artisan, designed several buildings during the 'twenties integrating typography with architecture in what he called "promotional architecture". This included the *Book Pavillion* (illustrated at left) for the 1927 *International Bienniale Exhibition of Decorative Art* in Monza as well as a similar design for his own *Art House* during the 1930's.

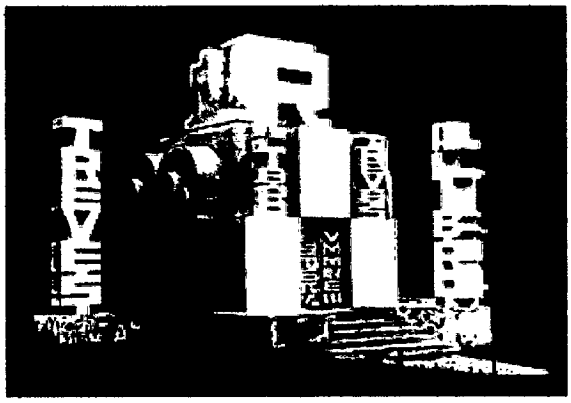


Figure 2.3 Trevesi Book Pavilion, Fortunato Depero, 1927

The engineer **Giacomo Matté-Trucco** was one of the first Italian designers to use reinforced concrete in his design for the iconic Fiat Lingotto Factory, Turin, during the 1920's.

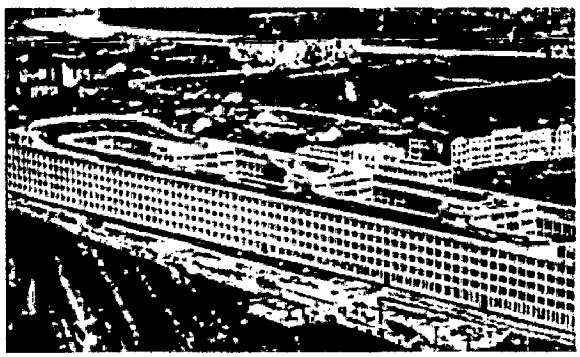


Figure 2.4 Fiat Lingotto Factory, Turin, Matte-Trucco, 1920's

The building, with a racing car test track on the roof, was declared in the Futurist manifesto of Aerial Architecture to be *"... the first built invention of Futurism"*.

In typical Futurist manifesto style, the young Sant'Elia began by aspersing traditional architectural style and decoration as *"architectonic prostitutions"* before glorifying the virtues of modern materials - *"the superb grace of the steel beam, the delicacy of reinforced concrete"* - and their inherent effect on architectural design and construction.

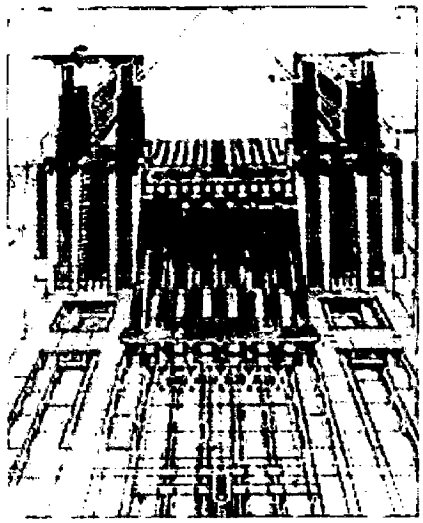


Figure 2.1 Perspective drawing from La Citta Nuova by Sant'Elia, 1914.

He saw the new architecture not as just utilitarian but as art. An expression of, and inspired by, the mechanical world *"... determining new forms, new lines, a new harmony of profiles and volumes, an architecture whose reason for existence can be found solely in the unique conditions of modern life, and in its correspondence with the aesthetic values of our sensibilities. This architecture cannot be subjected to any law of historical continuity. It must be new, just as our state of mind is new."*

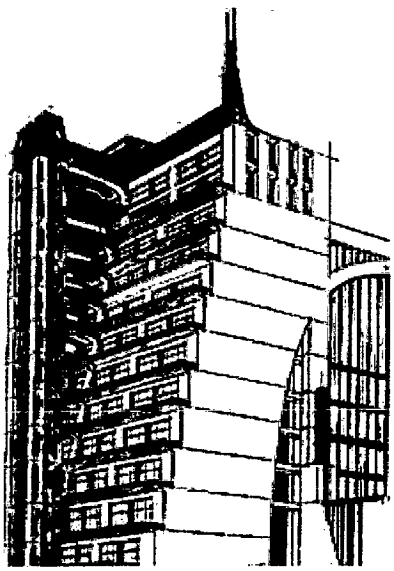


Figure 2.2 Perspective drawing by Sant'Elia, 1914

The relationship with the ever-growing early 20th century city and the unrestrained pace of its life was a key to the modern machine age for the Futurists. *"We must invent and rebuild the Futurist city like an immense and tumultuous shipyard, agile, mobile and dynamic in every detail; and the Futurist house must be like a gigantic machine."*

His lasting vision was for a highly industrialized and mechanized city of the future, which he saw not as a mass of individual buildings but a vast, multi-level,

2.1.1 ARCHITECTS INFLUENTIAL IN FUTURIST ARCHITECTURE

- Virgilio Marchi
- Louis Armet
- Welton Becket
- Arthur Erickson
- Wayne McAllister
- Oscar Niemeyer
- William Pereira
- Zaha Hadid
- Frank Gehry
- Peter Cook
- Future Systems
- Jennifer Siegal
- Tadao Ando
- Michael Rakowitz
- Santiago Calatrava
- Jean Michel Ducanelle
- Shigeru Ban
- Santiago Cirugeda
- Coop Himmelb(l)au
- Bernard Tschumi
- Hideyuki Yamashita
- Ron Herron

2.2 SCIENCE FICTION

Science fiction (often called **sci-fi** or **SF**) is a popular genre of fiction in which the narrative world differs from our own present or historical reality in at least one significant way. This difference may be technological, physical, historical, sociological, philosophical, metaphysical, etc, but not magical. Exploring the consequences of such differences is the traditional purpose of science fiction, but there are also many science-fiction works in which an exotically alien setting is superimposed upon what would not otherwise be a science-fiction tale.

Media

Early science fiction was published in books and in general circulation magazines.

- Film
- Television
- Comics
- Radio
- Other media

2.2.1 SCIENCE FICTION FILM

Science fiction film is a film genre that uses speculative, science-based depictions of imaginary phenomena such as extra-terrestrial lifeforms, alien worlds, and time travel, often along with technological elements such as futuristic spacecraft, robots, or other technologies. Science fiction films have often been used to provide

social commentary on political or social issues, and to explore philosophical issues, such as "what makes us human."

The genre has existed since the early years of silent cinema, when Georges Melies' *A **Trip to the Moon*** (1902) amazed audiences with its trick photography effects. From the 1930's to the 1950's, the genre consisted mainly of low-budget B-movies. After Stanley Kubrick's 1968 landmark ***2001: A Space Odyssey,*** the science fiction film genre was taken more seriously. In the late 1970s, big-budget, special effect-filled films science fiction films became popular with audiences, such as ***Star Wars*** and ***Close Encounters of the Third Kind,*** paving the way for the blockbuster hits of subsequent decades, such as "***E.T. the Extra-Terrestrial***" (1982) and ***Men in Black*** (1997).

2.2.2 FILM VERSUS LITERATURE

Science fiction literature often relies upon story development, reader knowledge, and the discussion of abstract concepts that may not be easy to transpose to film.

When compared to science fiction literature, science fiction films often rely less on the human imagination and more upon action scenes and special effect-created alien creatures and exotic backgrounds. In some cases, science fiction-themed films superimpose an exotic, futuristic setting onto what would not otherwise be a science-fiction tale. Nevertheless, some critically-acclaimed sci-fi movies have followed in the path of science fiction literature, using story development to explore abstract concepts.

2.2.3 INFLUENCE OF SCI-FI AUTHORS

Jules Verne was the first major science fiction author to be adapted for the screen with Melies *Le Voyage dans la Lune* (1902) and *20,000 lieues sous les mers* (1907), which used Verne's scenarios as a framework for fantastic visuals. His works have been adapted a number of times since then, including *20,000 Leagues Under the Sea* in 1954, *From the Earth to the Moon* in 1958, and *Journey to the Center of the Earth* in 1959.

H. G. Wells has had better success with *The Invisible Man*, *Things to Come* and *The Island of Doctor Moreau* all being adapted during his lifetime with good results while *The War of the Worlds* was updated in 1953 and again in 2005, adapted to film at least four times altogether. *The Time Machine* has had two film versions (1961 and 2002) while *Sleeper* in part is a pastiche of Wells' 1910 novel *The Sleeper Awakes*.

With the drop-off in interest in science fiction films during the 1940s, few of the 'golden age' sci-fi authors made it to the screen. A novella by John W. Campbell provided the basis for *The Thing from Another World* (1951). Robert A. Heinlein contributed to the screenplay for *Destination Moon* in 1950, but none of his major works were adapted for the screen until the 1990s: *The Puppet Masters* in 1994 and *Starship Troopers* in 1997. L. Ron Hubbard's fiction was not adapted until 2000, with the film *Battlefield Earth*. Isaac Asimov's fiction influenced the *Star Wars* and *Star Trek* films, but it was not until 2004 that a film version of one of his works (*I, Robot*) was produced.

The adaptation of sci-fi author Arthur C. Clarke's novel as *2001: A Space Odyssey* won the Academy Award for Visual Effects and offered thematic complexity

not typically associated with the sci-fi genre at the time. Its sequel, *2010: The Year We Make Contact*, was commercially successful but less highly regarded by critics. Reflecting the times, two earlier science fiction works by Ray Bradbury were adapted for cinema in the 1960s with *Fahrenheit 451* and *The Illustrated Man*. Kurt Vonnegut's *Slaughter-house Five* was filmed in 1971 and *Breakfast of Champions* in 1998.

Phillip K. Dick's fiction has been used in a number of sci-fi films, in part because it evokes the paranoia that has been a central feature of the genre . Films based on Dick's works include *Blade Runner* (1982), *Total Recall* (1990), *Minority Report* (2002), *Paycheck* (2003), and *A Scanner Darkly* (2006). Often, these film adaptations are loose adaptations of the original story, with the exception of *A Scanner Darkly*, which is close to Dick's book.

Any sufficiently advanced technology is indistinguishable from magic.

- Arthur C. Clarke

CHAPTER – 3

LITERATURE REVIEW

3.1 INTRODUCTION

We had a future that we could clearly imagine. The future wasn't tomorrow, next week, next year, or next century. It was a place with a form, a structure, a style. True, we didn't know exactly what the future would be like, but we knew that it had to be one of a few alternatives; some good, some very bad. The future was a world with a distinct architecture. It had its own way of speaking. It had its own technology. It was for all intents and purposes a different land where people dressed differently, talked differently, ate differently, and even thought differently. It was where scientists were wizards, where machines were magically effective and efficient, where tyrants were at least romantically evil rather than trivial, and where the heavens were fairyland where dreams could literally come true.

This painting by **Frank R. Paul's** of a city of the future and is pretty typical of such predictions. The city is a massive pile of steel, plastic and glass put together in a way that not only has no past, but actively rejects it. It is a place of heroic technology with skyscrapers the size of whole districts, roof-top aerodromes, wide pedestrian boulevards, and metal roadways strangely devoid of traffic. There are even urban space launch pads where

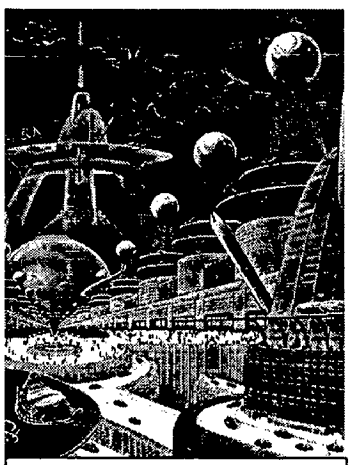


Figure 3.1 City of the future, Frank R. Paul

giant rockets are winched upright before blasting off to the heavens.

The iconic image of the future is the city. Think about it. In how many films have directors established the fact that we're in the future by conjuring up some landscape of incredible buildings with air cars whizzing about like semi-regulated gnats. ***Metropolis***, ***Bladerunner***, ***Just Imagine***, ***Things to Come***, and any number of god-awful ***Star Trek*** installments; they're all there. That's because a city's skyline tells you so much about the culture that built it.

3.2 PREDICTIONS, THE CITY OF TOMORROW

The scientific-technological revolution in the second half of the 20th century has had a substantial impact on the development of productive forces as well as on population distribution systems and city planning. This has made it necessary to predict the development of the various branches of the national economy and city planning.

The sphere of urban influence is constantly expanding; urban population is growing much faster than the world population. At the present time the trend is definitely towards "**megapolis**". The steady encroachment of urban areas on farm lands will apparently have to give way to greater urban compactness by the construction of high-rise buildings and the use of underground space.

Urban planners are also faced with the problem of designing new towns and cities to meet rapidly changing life styles of society. Presumably, future growth of the infrastructure (roads, garages, subways, hospitals, educational institutions, etc.) will have to considerably overtake the level of housing construction especially in the

biggest cities of the world, where the infrastructure of today lags considerably behind the level of housing construction.

Urban planning predictions are connected with the search for new systems of population distribution in new towns designed to reduce the population density of the old cities, improve their transportation systems, minimize travelling time to work and create better living conditions.

Following is a brief description of a number of projects for the city of the future published in special Soviet and foreign literature.

Thus, Swiss architects have designed an experimental city comprising seven residential formations in the form of dome-shaped structures, each one designed to house 15,000 persons.

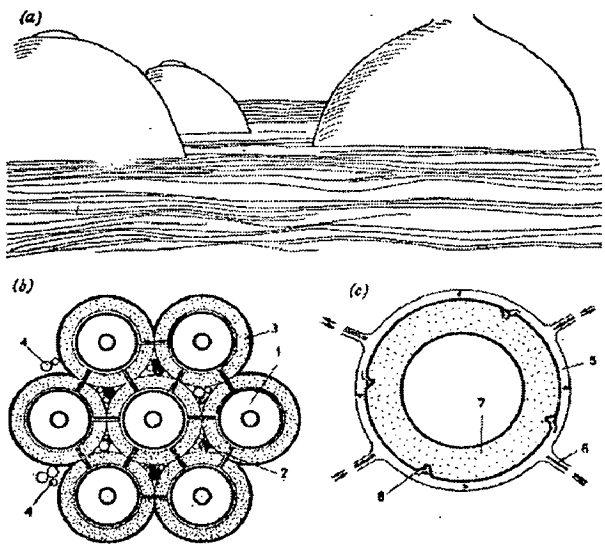


Figure 3.2. "Radio city". Experimental city with dome structures

A characteristic feature of these structures, described as "**radio cities**" is that the space inside the dome divided into tiers, will accommodate both residential blocks and cultural and service facilities and also industrial enterprises. Such self-contained dome shaped structures can function being, rigidly fixed to the ground and floating on water. The seven dome-shaped structures occupy an area of 28 ha. The design height of the structures is 200 m. The first two tiers are intended for industrial establishments; located in the third tier are shops, restaurants, hotels, elementary schools, kindergartens, exhibitions, clubs. In the upper tiers are the residential blocks located along the outer perimeter of the

dome. Population density in a residential block is 535 persons per ha. The total number of apartments in a dome is 10,700. The apartments are three-dimensional units erected on the site. They all have continuous projecting balconies on the exterior of the dome forming a kind of terraced structure. The roof of the dome has an opening for light and ventilation; around the opening is an open platform for rest and for viewing the surrounding landscape. In every dome-shaped structure, the apartments are connected with each other and with the production premises by an elevator and escalator. All pedestrian traffic is reduced to a minimum. Around each dome is a green belt, 22 ha ill area. The green belt will be built up with social and cultural organizations: a theatre, secondary school, higher school of learning, a museum, a main post office, department store, hospital and sports facilities.

The very form itself of dome predetermines the creation of ring roads encircling each structure and radial roads. Linking the ring roads with each other. These roads are intended only for private transportation, with the garages and parking lots located in tiers under the green belt. Public transportation' in the new cities will operate on a mono-railroad and by helicopter.

Swiss architect, **V. Ionas** has suggested the idea of a city consisting of a group of funnels (cones) with the apex resting on the ground and the top of the funnel connected by beams. Each funnel is a self-contained block with the apartments located in tiers.

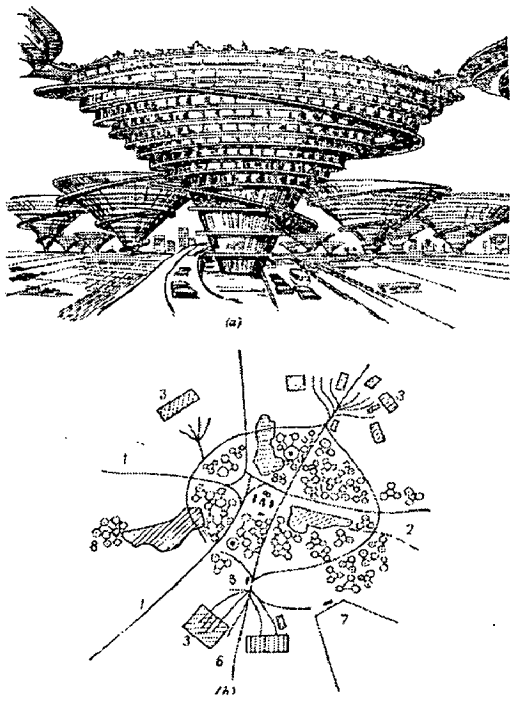


Figure 3.3 V. Ionas. City with funnel-shape residential communities

In the author's opinion, the advantage of this form is that the apartments which are placed in terraces on the inside wall of the funnel will all be better insolated and protected against the noise and harmful gases of automotive traffic. Each funnel will have 702 horse-shoe shaped apartments designed for 2,000 persons.

The height of the funnel is 100 m, its diameter at the top -200m. Cultural and service facilities and shops are located in the lower part of the funnel. Two thirds of the height of the structure is occupied by apartments. Provision is made for a ramp on the outside of the funnel for direct access of cars to the apartments.

V. Ionas applied this idea in his design for the **floating city** of "Intra" consisting of an underwater part, a cone and a funnel. Each one of these elements can accommodate various facilities, with schools and apartments on the top. Solar energy is trapped here by mirrors regulated by computers and concentrated in a central station placed on the top of a mast in the centre of the structure.

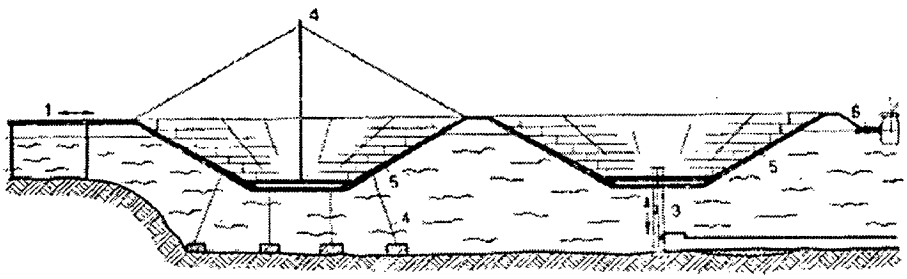


Figure 3.4 V. Ionas. Floating funnel city "Intra". Section view

P. Meymont (France) has proposed a design for a resort located on rocky shore. This is a cable suspension construction supported by two masts containing emergency staircases. Suspended from cables are villas connected by suspended passages.

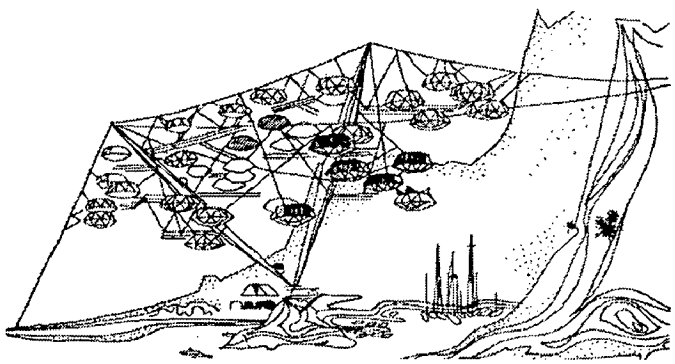


Figure 3.5 P. Meymont. Suspension resort town. General view

Meymont's cable construction was most fully realized in his design of a three-dimensional city with a central mast and tension cables. The entire body of the structure hanging from a central mast is divided into rings of varying angles of slope making it possible to obtain constant sunlight throughout the enormous space inside the structure.

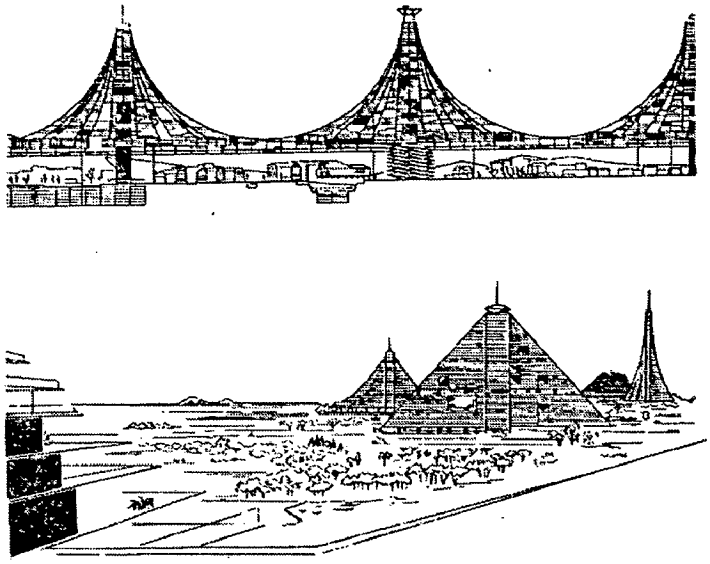


Figure 3.6 P. Meymont. Three-dimensional city. Facade fragment and general

Following figure shows the design of a "***floating city***" with residential blocks for 15,000-20,000 inhabitants located on caissons up to 300-500 m in diameter and connected with each other by bridges for automotive traffic.

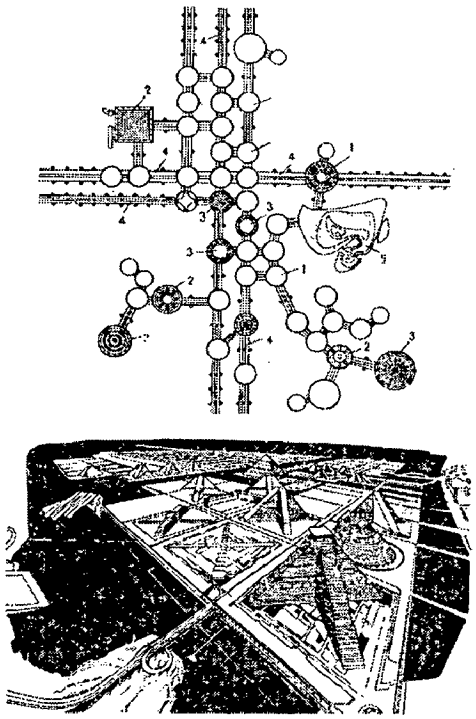


Figure 3.7 P. Meymont Floating City, Plan & Perspective

Some urbanists believe that in a century of rockets and space exploration, urban planners should storm upper space thus freeing the land for agriculture, gardens, parks, architectural monuments, roads, etc. Erected high above the land are prefabricated high-rise structures supported by columns for work and everyday living. Transportation, engineering and other, facilities are to be built underground.

Among Soviet architects engaged in seeking new three-dimensional urban structures, mention may be made of G. Borisovsky who has proposed the idea of a "***Hanging city***", supported by hollow supports (shafts) several hundred meters high and spaced at a considerable distance from each other. Lifts and engineering facilities are inside the shafts. Stretched between the shafts is a three-dimensional net of high strength material to which any structural element can be suspended at any place.

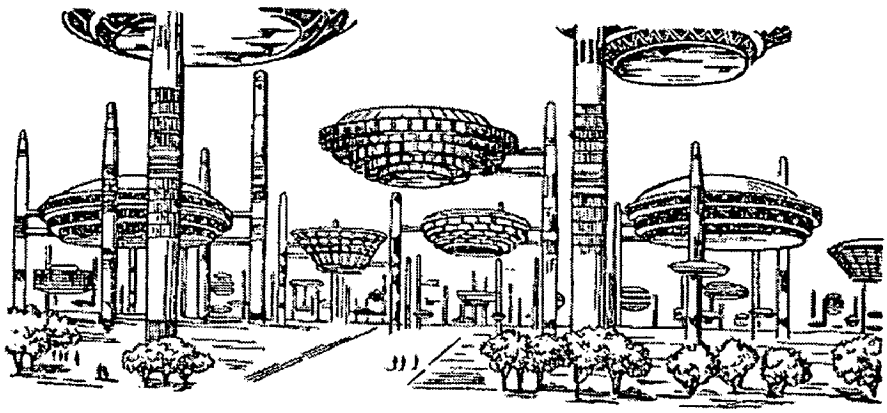


Figure 3.8 G. Borisovsky, Hanging City, General View

A kind of "field of force" is created in which are suspended the "Planet-dwellings" made of three-dimensional apartment cells hanging from the net at any place and in their entirety forming the residential space of the city in any shape.

The concept of a **dynamic three-dimensional vertical structure** for a city has been advanced by V. Loktyev. This system combines a flexible structure with cybernetic modelling of the city and urban distribution. Flexibility of the structure renders it possible to reconstruct and replace any cell unit when required.

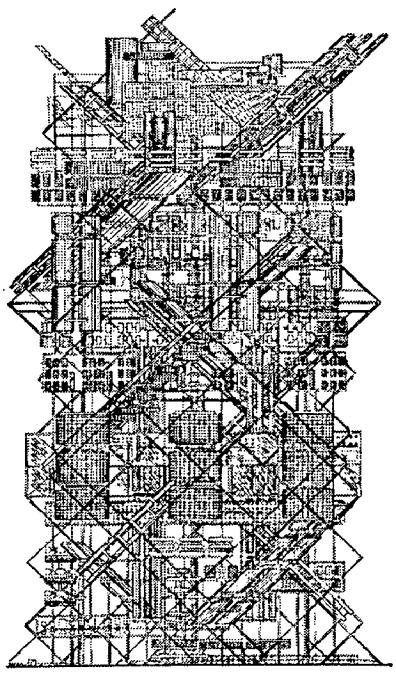


Figure 3.9 V Loktyev, Three Dimensional City,

K. Pchelnikov advances a concept for the rational development of existing urban aggregations by constantly renewing and increasing the heights of buildings. This concept is based on a model of a residential district of Moscow with a population of 75,000-90,000 to be carried out in a period of 25-35 years. At each stage, part of the old buildings are demolished and replaced by structures up to 700 m in height. Already today, along with three-dimensional urban structures of the future, planners are working on the problem of subterranean urbanization.

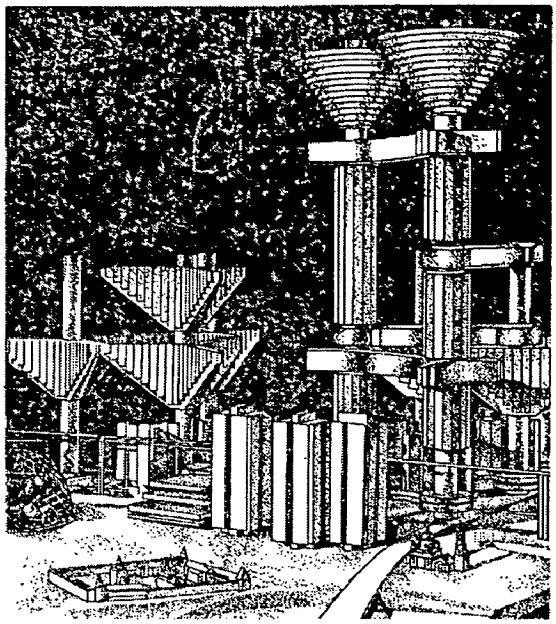


Figure 3.10 K. Pchelnikov. Three-dimensional city, General view

The use of subterranean space in large cities will make it possible to solve major city-planning problems such as:

1. Reducing the district needed for residential construction, cultural and service facilities.

2. Increasing the area of green spaces, water areas, sports complexes, places for rest and recreation, etc.

3. Improving the organization of transportation in the city itself, with suburban areas for rest and recreation.

4. Improving cultural and public facilities and services by bringing them closer to places of work and to concentration of people at transportation facilities.

5. The overall location in subterranean space of utilities, transportation facilities and other public structures.

The use of subterranean space will make it possible to take a new look at the plan structure of cities, to remove underground large enterprises with pollution hazards, warehouses, markets, railway stations, garages, etc., thus lessening urban noise, fire hazards and air pollution. It is also possible to locate underground buildings and structures that practically do not require daylight such as cinemas, shopping establishments, cultural and service facilities where people come for only a short time. The use of subterranean space is fairly widespread in many large cities of the world (London, Tokyo, Vienna, Hamburg, Montreal, and others). Considerable work in this field is presently being carried out in Moscow in connection with the new general plan for the further development of the capital. (**Ref**: Rimsha, A.N, Town Planning in Hot Climates, 1976)

3.2.1 SKYLINE OF FUTURE CITIES

When you're talking about the skyline of tomorrow, you're up against two schools of thought. The first is that of the "serious" architects-- the sort Modernist dreamers that did away with all that conservative ornamentation and obsolete classical nonsense in favour of good, clean lines suitable for the enlightenment of the labour who didn't know what was good for them.

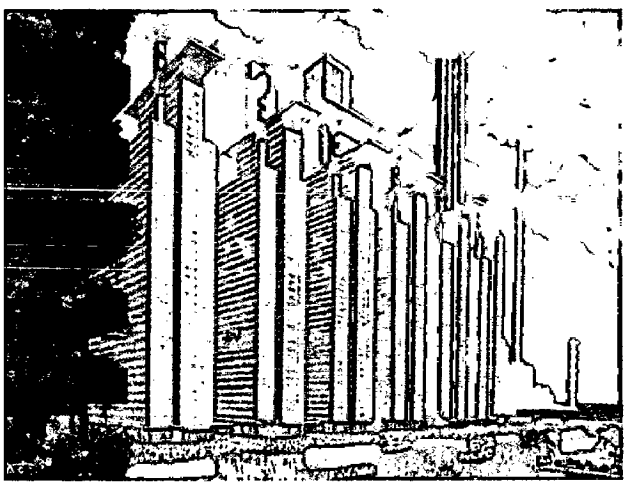


Figure 3.11 Artistic Impression, Ville du future

They loved to put down great slabs of brick that were cities unto themselves in vast plains of concrete dotted with trees that gave no shade, marble benches that no human being could sit comfortably on, steps that were so wide and low that they made you walk like a duck, and nothing to give any pedestrian any protection from the elements. In the summer you roasted under the sun and in the winter you froze in the raw northern winds. But it gave the paperboard models a wonderful sense of perspective.

The other school came from the wild and free imaginations of the pulp magazine artists. These underpaid, underappreciated workers in the fields of violent fiction weren't concerned about making a great social statement in steel and glass, but in meeting their deadlines and collecting their meagre fees. Their school wasn't an allegiance to Bauhaus or Dada, but to spectacle, uncontrolled enthusiasm-- and rocket ships on the roof.

The pulp cities could be as frighteningly inhuman as anything to come from the drawing boards of "proper" architects, but pulp had one great advantage: they were exciting. They were cities where Adventure lurked, where anything could happen, and where you at least got a great view of the sky bridges as Blackie Ben tossed you out of the 200th story window of Atomic Towers.

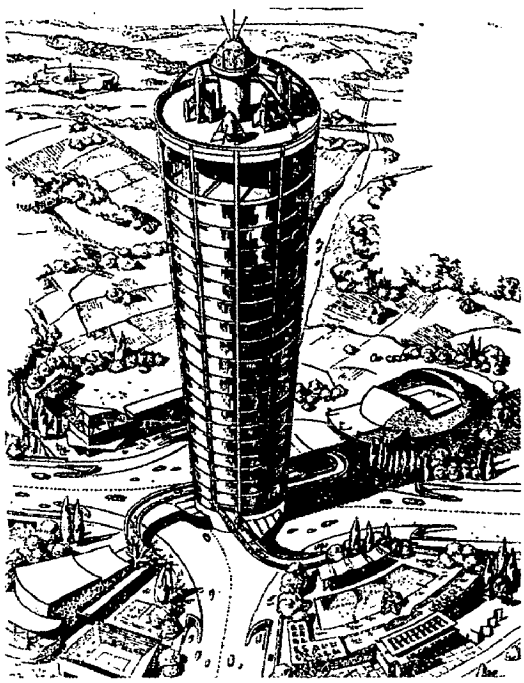


Figure 3.12 Artistic Impression, Space Tower.

In other words, what the pulp school of future architecture offered was Romance, and that's something we've been sorely lacking of late.

3.3 SCIENCE FICTION TO SCIENCE FACT+ION

Imagine a gun that uses fingerprint scanning to prevent you firing a shot, brain implants that let you tap into people's memories and a newspaper that updates itself when a big story breaks. It's not science fiction, it is science fact, as technologists catch up with - and surpass - the benchmarks set by sci-fi writers and filmmakers.

Set in the not-too-distant future, sci-fi films offer insights into what the world might be like and what impact evolving technologies might have on daily life. The fact that **cloning, virtual reality and biometrics** are commonplace concepts today is partly due to representations of the technologies in film and science-fiction literature and that scientists have taken many cues from what they've seen take place on screen.

"Many people have a vocabulary about the future and you find a lot of the young researchers were very inspired by ***2001, Star Trek, Blade Runner*** or ***The Matrix***. In a very real way, the technologists are inspired by the sci-fi people and the sci-fi people are similarly inspired by the technologists."

More than merely being inspired by technologists, filmmakers are actively seeking out scientists for advice and input. Whereas early science-fiction filmmakers could take a liberal dose of artistic license when grappling with scientific concepts, modern science has taken away this luxury for today's filmmakers and called for accuracy in science-fiction filmmaking like never before. Steven Spielberg's ***Minority Report***, set in the not-too-distant future, featured a wealth of hi-tech gadgetry. The film is highly regarded for its accuracy in projecting what life will be like in 2054 as all

objects and gadgets featured in the film have very real foundations in existing technologies.

Robotics has long been the subject of science-fiction books and films. Classic examples include the Terminator series, which is based on the premise that machines get too smart for our own good and take over the world. **Consumer robots** such as **Sony's Aibo**, a robotic dog that can be trained to recognise voice commands and the owner's face, are becoming more common. Chris Winton of Biometrics Australia says concepts of **retina scanning** and **fingerprint recognition** were first floated about 50 years ago in fictional works of Dick and it has "taken technology a long time to catch up".

In the 23rd century universe of "Star Trek," people talked to each other using **wireless personal communicators**, had **easy access to a vast database of information** and spent hours **gazing at a big wall-mounted video screen**. On 21st century Earth, that future is already here. People talk to each other on wireless communicators called **cell phones**. They have instant access to infinite amounts of information on the **Internet**. And they can spend hours staring at a **big wall-mounted plasma or liquid- crystal display TV** watching reruns of "Star Trek." (**Ref**: Science faction by Fiona Williams, 2003)

3.3.1 SCIENCE FICTION & ARCHITECTURE FICTION

It's entirely possible to write "**architecture fiction**" instead of "science fiction." Like, say, **Archigram** did in the 60s.A group of young London- based architects

began and sustained a campaign of environmental revolution. They went beyond function to images of fantasy based on mechanical invention

Plug-in City,

Living Pod,

Instant City and Ad Hoc,

Manzak,

Suitaloon,

Cushicle,

Blow out Village,

Gasket Homes, and

Walking City

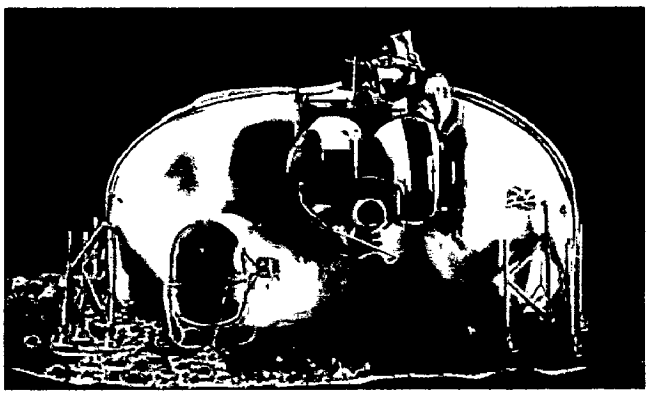


Figure 3.13 Living Pod, Archigram

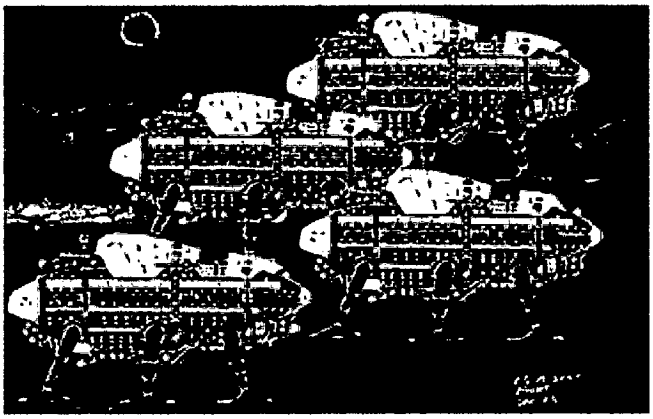


Figure 3.14 Walking City, Archigram

3.3.2 SCIENCE FICTION CITY

Science fiction is often at its most poetic and political when it uses and organizes physical or real space and symbolic or psychological space to structure its Utopian or dystopian stories. The science fiction city is often a spectacular and/or horrifying environment, built out of special effects that render it omnipresent, fluid, foreboding and/or simultaneously awe-inspiring. Sitting in the modern cinema, one really knows that one is witnessing a possible world emerge when great buildings rise out of the dark skies and **endless walkways, skywalks, hi-rises, low-rises, tunnels and bridges** — made of steel, bright plastic and glass, or crumbling, dismal concrete.

In the science fiction city impression is everything. When the rain falls acid eats its way into the very fabric of people's everyday lives. When the sun shines people make their way to the country or fly off-world. The garish neon exteriors and interiors promise sleaze, cheap booze, sex, or the latest drug or technological commodity, but ultimately all they often do is dazzle and disappoint the city's inhabitants. In these squalid hovels people are always in a rush, driven by an impossible, inhuman tempo. In these dismal inner-city re-imaginings, people are uprooted, disenfranchised and dislocated, cars and spacecraft fly overhead and underneath feet so that one has the impression that all space, public and private, has been dissolved or has no end point or beginning. One often walks alone in the dizzy science fiction city while being at the same time surrounded by people, pollution, traffic, endless signs, security and surveillance devices, and deafening noise.

By contrast, the shiny, spotless skyscrapers and sumptuous split-level homes that also populate science fiction promise a future where difference and inequality has been eradicated. In these heavenly spaces, people have been given the time to pursue leisure, the arts and scientific knowledge at their will. In these cultured spaces, people are happy and contented in the science fiction city.

In the science fiction city boundaries and borders are everything. Hierarchies of power and control are marshalled out of one's spatial positioning so that where you live - how high or low or whether you are on the 'inside' or the 'outside' of the metropolis grid - how you live - exotic, nostalgic, cheap, stylish — and who (if anybody) you live with or next to is a key determinant of your social position, racial and class background. If you live too low in the science fiction city, or in the wrong neighbourhood, or you live alone or with somebody you love desperately, or you live next to the meat shop and the late-night tech-noir, then you are ticketed and docketed as Other, and all narrative events emanate from this social 'fact'.

Vivian Sobchack argues that the science fiction film's spatial articulations provide the literal premises for the possibilities and trajectory of narrative action'. The city space is considered to be a 'specific power' that can 'affect both people and materials - a power that modifies the relations between them'. Sobchack goes on to examine the changing nature of this specific power in science fiction film. In the 1930s'utopian impulses represent the city as eternal ideal'. In the 1950s the city is about dissolution and destruction, and is either razed to the ground or encountered as empty or barren. In the 1960s and 1970s the city becomes a symbol for lowering oppressiveness and over crowdedness, haunted by the then-contemporary fears

about over-population, food shortages and an ageing population. And in the 1980s onwards, the city is totally exhausted, 'groundless in both time and space', and 'totally resigned to its ruination'.

Eric Avila also examines a particular period of what he calls urban science fiction cinema - the 1950s. But instead of seeing a collectivized sense of dissolution and destruction being represented in the structures and mise-en-scene of the city, he sees the expression of 'white flight' and the fear of the racialised other. Avila argues that 'the urban science fiction film provided a cultural arena where suburban America could measure rts whiteness against the image of alien Other'. Providing a close textual analysis of *War* of the *Worlds* and Them.', he goes on to suggest that 'mainstream white audiences may have viewed the movement of blacks and other racialised minorities into cities as not so much a migration, but rather an invasion of what had been previously white space'.

Wong Kin Yuen examines the importance of Hong Kong's cityscape to cyber-punk cinema, suggesting that it provides the model city 'for the **sf** genre of 'future noir". Yuen takes two case studies in his essay - *Blade Runner* and *Ghost in* the *Shell* - and compares the architectural layout of the former with a shopping mall in Times Square, Hong Kong, drawing on post-modern arguments to understand the relationship. Yuen suggests that 'considering Hong Kong as among the cinematic models for the Future City may inspire not only a further look at Hong Kong at this present moment of political transition but also its potential for developing into a forerunner of what the contemporary Capitalist world city will eventually become'.

3.4 TECHNOLOGICAL ADVANCEMENTS

3.4.1 GADGETS & IDEAS

Just picture those old movies from the 80's like Terminator and the Aliens series. Think of the costumes they wore. Have we got a suit for you! Called **exoskeletons**, this robotic assisted suit does in fact exist and may prove to be quiet helpful.

We'll tell you about inventions that haven't made it to the supermarket shelf...or even to the production line.. but are really happening. There's the **3-D printer** that can create objects like an inkjet printer - but in 3-D. The **Sc ramjet** that will be able to travel from Sydney to London in 2 hours. The **Power Tower**; a huge tower that runs off solar energy to power entire cities. And of course there's **teleportation**.

Another idea that has long appeared in the realm of science fiction is invisibility. We still can't make people invisible but a group in Japan is attempting to do the next best thing, designing a system to make people appear see through, **optical camouflage**. **Aerogel** it feels like styrofoam, is extremely super-light and super-incredibly insulating. It's also a weird glowing blue and can be used to catch comet dust. Music lovers can get **inflatable speakers** and a **wah wah peddle** that's not actually a peddle!

Batteries flat again? Try a **battery** that never needs replacing. Yup, they're designing batteries that just slip under your skin to charge up your watch, mobile phone...anything. All you do to recharge it is eat. But do we really want something

3.4.2 OPTICAL FIBER

An optical fiber (or fibre) is a glass or plastic fiber designed to guide light along its length by total internal reflection. Fiber optics is the branch of applied science and engineering concerned with such optical fibers. Optical fibers are widely used in fiber-optic communication, which permits digital data transmission over longer distances and at higher data rates than other forms of wired and wireless communications. They are also used to form sensors, and in a variety of other applications.

The light-guiding principle behind optical fibers was first demonstrated in Victorian times, but modern optical fibers were only developed beginning in the 1950s. Optical fibers became practical for use in communications in the late 1970s, and since then several technical advances have been made to extend the reach and speed capability of optical fibers, and lower the cost of fiber communications systems.

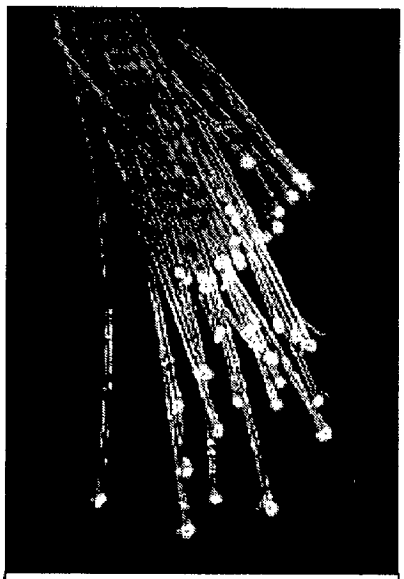


Figure 3.15 Optical Fibres

LIGHT TRANSMITTING CONCRETE

The days of dull, grey concrete could be about to end. A Hungarian architect has combined the world's most popular building material with optical fiber from Schott to create a new type of concrete that transmits light.

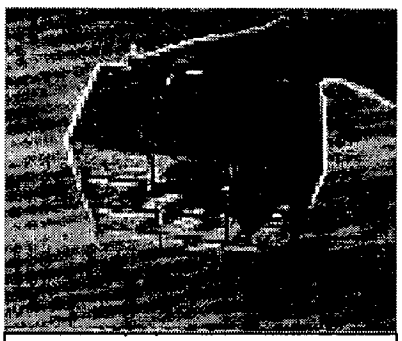


Figure 3.16 Litracon

applications.

The light-guiding principle behind optical fibers was first demonstrated in Victorian times, but modern optical fibers were only developed beginning in the 1950s. Optical fibers became practical for use in communications in the late 1970s, and since then several technical advances have been made to extend the reach and speed capability of optical fibers, and lower the cost of fiber communications systems.

LIGHT TRANSMITTING CONCRETE

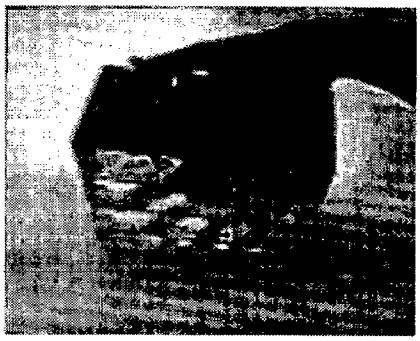


Figure 3.16 Litracon

The days of dull, grey concrete could be about to end. A Hungarian architect has combined the world's most popular building material with optical fiber from Schott to create a new type of concrete that transmits light.

A wall made of "**LitraCon**" allegedly has the strength of traditional concrete but thanks to an embedded array of glass fibres can display a view of the outside world, such as the silhouette of a tree, for example.

Figure 3.17 Litracon Wall, Optical Fibres

"Thousands of optical glass fibres form a matrix and run parallel to each other between the two main surfaces of every block," explained its inventor Áron Losonczi. "Shadows on the lighter side will appear with sharp outlines on the darker one. Even the colours remain the same."

The light-guiding principle behind optical fibers was first demonstrated in Victorian times, but modern optical fibers were only developed beginning in the 1950s. Optical fibers became practical for use in communications in the late 1970s, and since then several technical advances have been made to extend the reach and speed capability of optical fibers, and lower the cost of fiber communications systems.

The hope is that the new material will transform the interior appearance of concrete buildings by making them feel light and airy rather than dark and heavy. Losonczi, a 27 year old architect from Csongrád recently came up with the idea while he was studying at the Royal University College of Fine Arts in Stockholm, Sweden. After demonstrating the material at design exhibitions all over Europe he has now formed a company to commercialize the concept. His new company, also called LitraCon, is now optimizing its manufacturing methods and hopes to start selling prefabricated blocks of the material later this year. "In theory, a wall structure built out of the light-transmitting concrete can be a couple of meters thick as the fibres work without any loss in light up to 20 m," explained Losonczi. "Load-bearing structures can also be built from the blocks as glass fibres do not have a negative effect on the well-known high compressive strength of concrete. The blocks can be produced in various sizes with embedded heat isolation too."

OPTICAL FIBER SOLAR LIGHTING SYSTEMS:

With five hybrid solar lighting systems already in place and another 20 scheduled to be installed in the next couple of months, the forecast is looking sunny

for a technology developed at the Department of Energy's Oak Ridge National Laboratory.

Preliminary data from field units, which collect sunlight and pipe it into buildings using bundles of small optical fibers, show potentially significant energy savings in lighting and maintenance costs. An added benefit is that, for most uses, natural light is vastly superior to artificial light.

The hybrid solar lighting technology uses a rooftop-mounted 48-inch diameter collector and secondary mirror that track the sun throughout the day. The collector system focuses the sunlight into 127 optical fibers connected to hybrid light fixtures equipped with diffusion rods visually similar to fluorescent light bulbs. These rods spread light in all directions. One collector powers eight to 12 hybrid light fixtures, which can illuminate about 1,000 square feet. During times of little or no sunlight, a sensor controls the intensity of the artificial lamps to maintain a constant level of illumination.

3.4.3 NANOTECHOLOGY

Nanotechnology (sometimes referred to as **nanofabrication**)is a field of applied science and technology covering a broad range of topics. The main unifying theme is the control of matter on a scale smaller than one micrometre, as well as the fabrication of devices on this same length scale. It is a highly multidisciplinary field, drawing from fields such as colloidal science, device physics, and supramolecular chemistry. Much speculation exists as to what new science and technology might result from these lines of research.

Nanotechnology will most likely have a significant impact on the building products and buildings.

Opportunities for Nanotechnology

Construction-Materials

The Institute of Nanotechnology has just released a report describing the current and emerging uses of nanotechnology in building materials. The report - summarized here by NanoVic work experience student Aidan Kempster - reveals a surprisingly large number of applications ranging from harder steel to self-repairing concretes.

Building materials

- Corrosion protective roofing and cladding using nanometer scale corrosion inhibitor coatings.
- Glass with properties such as self cleaning coatings. transparent-opaque switchable glass, UV blocking glass, heat management glass coatings.
- High performance insulation materials based on nanoporous aerogel materials.
- Paint coatings with enhanced UV protection, and durability using transparent UV adsorbing nanoparticles, nanodyes, and nanoadditives.
- Fire retardant materials using nanoparticles or nanoclays.
- Easy clean surfaces based on surface nanostructures that produce water repellent surfaces.

The performance of Colorbond coatings by BlueScope Steel is being improved by understanding the materials' performance at the nanoscale. Colorbond is a well-designed multilayer system offering durability, flexibility and corrosion protection. The RMIT University School of Applied Sciences has been working with BlueScope

Steel, owner of the proprietary Colorbond technology, in order to maintain and improve its performance product.

Housing systems

- Water treatment systems based on nanofiltration and light activated nanoparticles that facilitate household water recycling.
- Energy efficient lighting using light conducting materials that transmit light and energy efficient LED and electroluminescent based lighting.
- Advances in energy generation using solar generation and advanced energy storage systems will enable freedom from grid electricity and environmental sustainability
- Intelligent housing systems that respond to stimuli such as temperature, light, and airflow to continually optimize the environment inside the building.

Nanotechnology Victoria - Building Technology Projects

- Nanotechnology Victoria is involved in projects developing nanopigments, which aims to deliver UV stability and ease of incorporation into polymer systems.
- Corrosion protection systems that replace toxic chromate coatings are being investigated in collaboration with Monash University.
- Nanotechnology Victoria is working with a manufacturing company to investigate the antibacterial properties of silver nanoparticles and light activated particles.

Among all forms of mistake, prophecy is the most gratuitous!

- George Eliot

CHAPTER - 4

ENVISIONING FUTURE

4.1 VISION OF ARCHITECTS

Architects of all periods have challenged the accepted norms to tackle with the issues of the future. In this process, they have provided us with a dazzling bunch of ingenious solution to meet the widely changing needs & desires of our global society.

4.1.1 18th CENTURY ARCHITECTS

1. ETIENNE-LOUIS BOULLEE (February 12, 1728 — February 4, 1799) was a visionary French neoclassical architect whose work greatly influenced contemporary architects and is still influential today.

Boullée's ideas had a major influence on his contemporaries; some of his work only saw the light of day in the 20th century. Boullée's fondness for grandiose designs has caused him to be characterized as both a megalomaniac and a visionary. His focus on polarity (offsetting opposite design elements) and the use of light and shadow was highly innovative, and continues to influence architects to this day. He was "rediscovered" in the 20th century and has influenced recent architects.

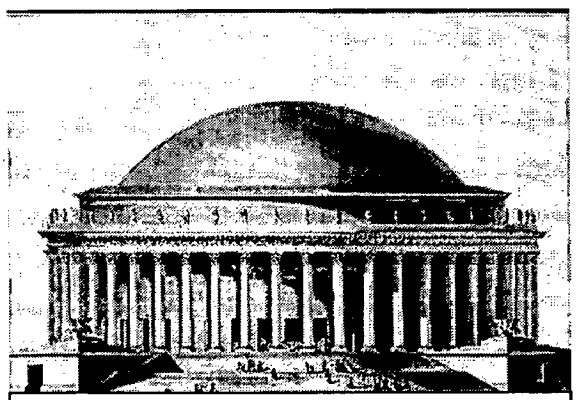


Figure 4.1 Elevation, Opera Au Carrousel, Boullee

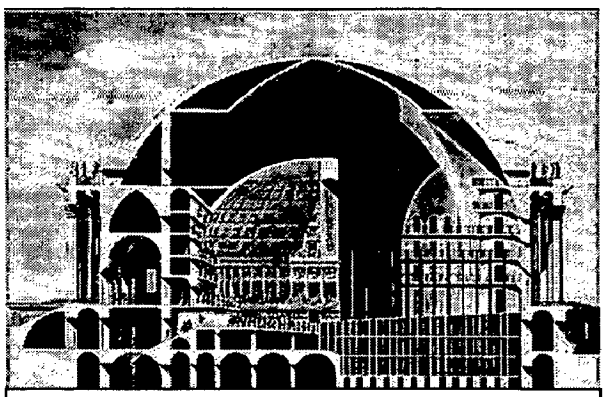


Figure 4.2 Section, Opera Au Carrousel, Boullee

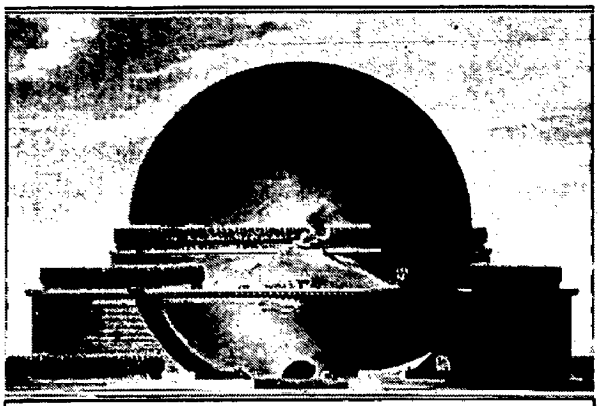


Figure 4.3 Elevation, Cenotaph in honour of Sir Issac Newton, Boullee

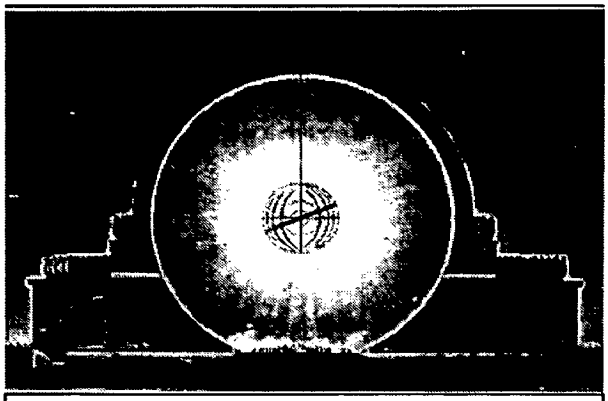
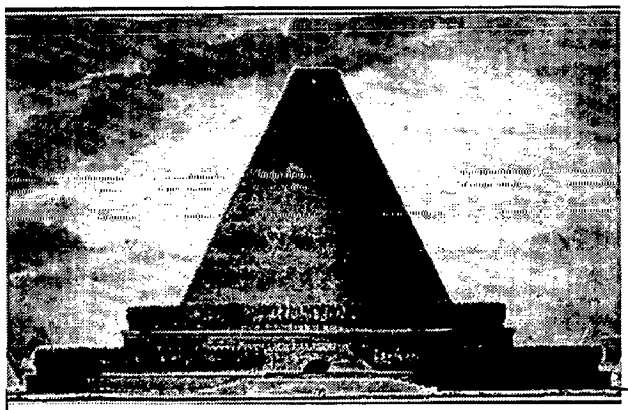


Figure 4.4 Section, Cenotaph in honour of Sir Issac Newton, Boullee

Many of Boullée's designs are monumental visions of neoclassical grandeur that often cross over into outright bombast. The following design, for a cenotaph in honour of Isaac Newton, is particularly striking: a greatly-magnified version of the Mausoleum of Augustus in Rome, but built around an enormous spherical planetarium.

The following designs are for another projected cenotaph, this one a truncated cone atop a pair of concentric circular platforms, ringed around with funerary cypresses. If that weren't monumental enough, Boullée envisaged this structure as just the centrepiece of a much larger whole.



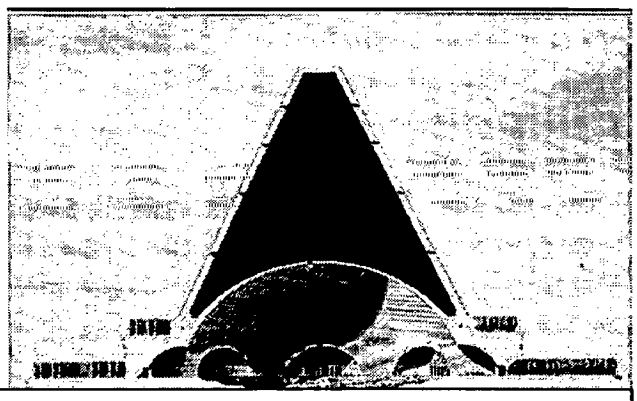


Figure 4.5, 4.6 Elevation, and Section, Cenotaph, Boullee

2. JEAN-JACQUES LEQUEU (Rouen, September 14, 1757 – 28 March 1826) was a French draughtsman and architect. Lequeu sketched fanciful and often extravagantly unconstructable buildings, and all were active at the advent of the French revolution.

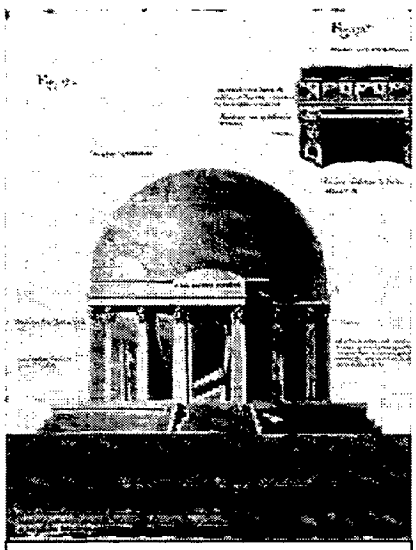


Figure 4.7 Trale du temple de la Terre, Lequeu

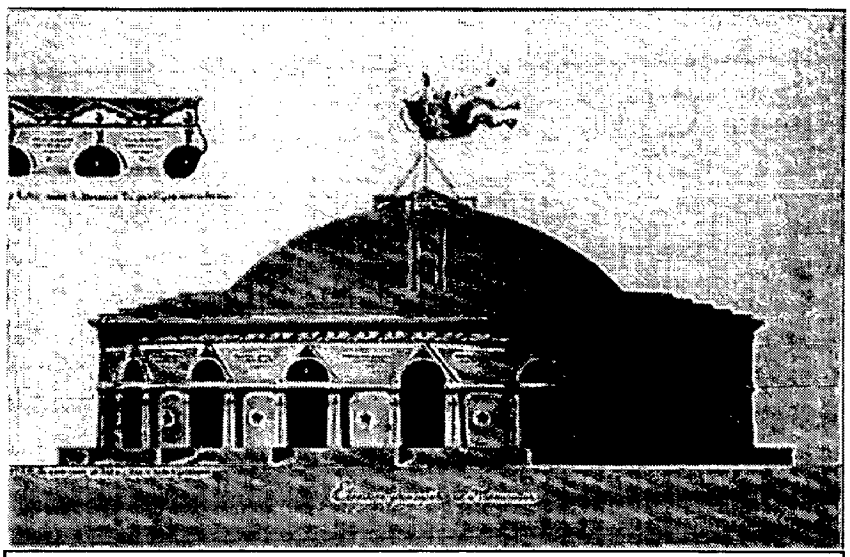


Figure 4.8 Elevation principale du monument, Lequeu

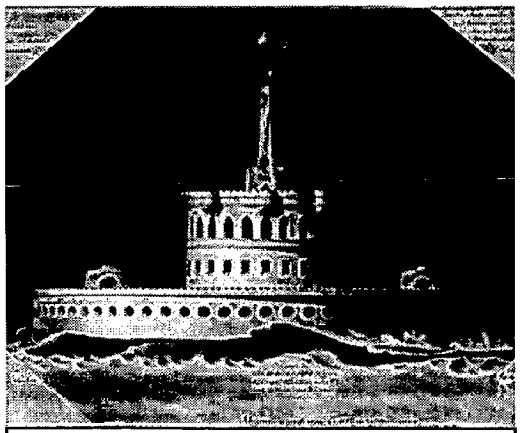


Figure 4.9 Le vieux cheteau en maronnerie, Lequeu

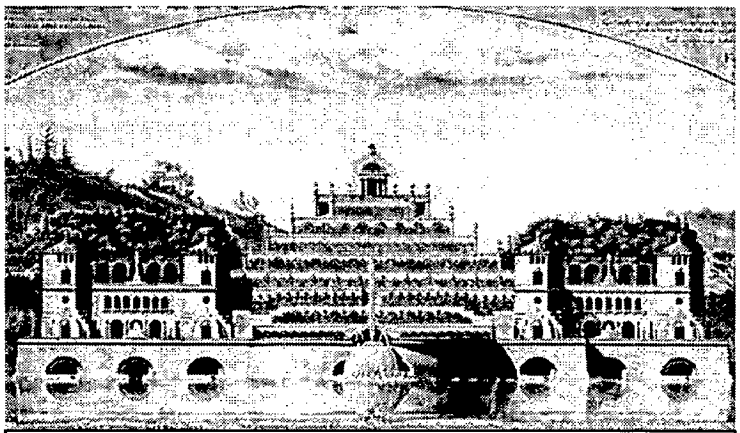


Figure 4.10 Le d'amour et reposed, Lequeu

3. CLAUDE-NICOLAS LEDOUX (March 21, 1736 — November 18, 1806) was one of the earliest exponents of French Neoclassical architecture. He used his knowledge of architectural theory to design not only in domestic architecture but town planning; as a consequence of his visionary plan for the Ideal City of Chaux, he became known as a utopian.

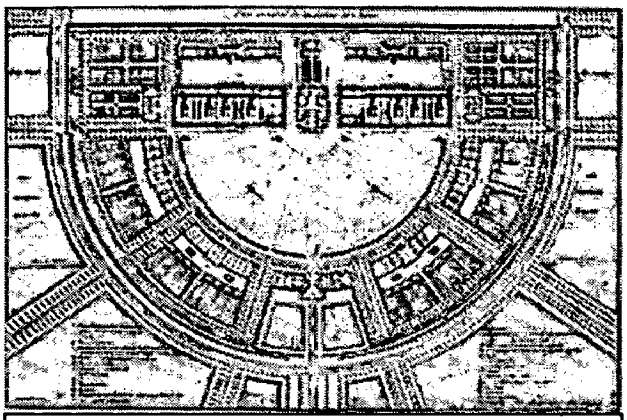


Figure 4.11 la Saline d'Arc et Senans, Ledoux

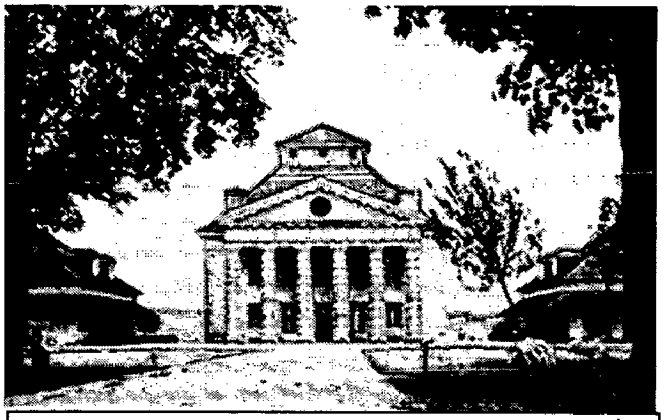


Figure 4.12 Rotonde de la Villette, Ledoux

Around the time of the royal saltworks, Ledoux formalized his innovative design ideas for an urbanism and architecture intended to improve society, of a *Cité idéale* charged with symbols and meanings. Along with Étienne-Louis Boullée and his project for the Cenotaph of Newton, he is considered a precursor to the utopians who would follow.

In 1775, he presented Turgot with the first drafts of the town of Chaux, centered on the royal saltworks. The project, constantly perfected, was engraved in 1780. As a radical utopian of architecture, teaching at the École des Beaux-Arts, he created a singular architectonic order, a new column formed of alternating cylindrical and cubic stones superimposed for their plastic effect. In this period, taste was returning to the antique, to the distinction and the examination, of the taste for the "rustic" style.

4.1.2 20th CENTURY ARCHITECTS:

1. **LUDWIG MIES VANDER ROHE** (born *Maria Ludwig Michael Mies*) (March 27, 1886 – August 17, 1969) was a German architect.

Figure 4.13 Friedrichstrasse Skyscraper, Mies Vander Rohe

Mies made a dramatic debut with his stunning competition proposal for the faceted all-glass **Friedrichstrasse skyscraper** in 1921. The Friedrichstrasse Office Building (1919) was one of the first proposals for an all steel-and-glass building and established the Miesian principle of "skin and bones construction. The "**Glass Skyscraper**" (1921) applied this idea to a glass skyscraper whose transparent f acade reveals the building's underlying steel structure. Both of these building designs were uncompromising in their utter simplicity. Few unbuilt buildings surpassed them in the variety of ideas and in their influence on the development of the architecture of the time.

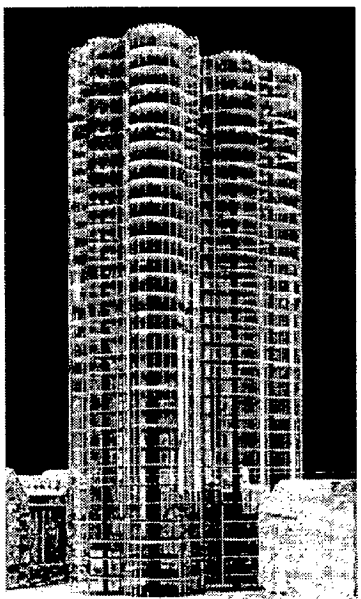


Figure 4.14 Glass skyscraper, Mies

He continued with a series of brilliant pioneering projects, culminating in his two European masterworks: the temporary **German Pavilion** for the Barcelona exposition in 1929 (a reproduction is now built on the original site) and the elegant **Villa Tugendhat** in Brno, Czech Republic, completed in 1930.

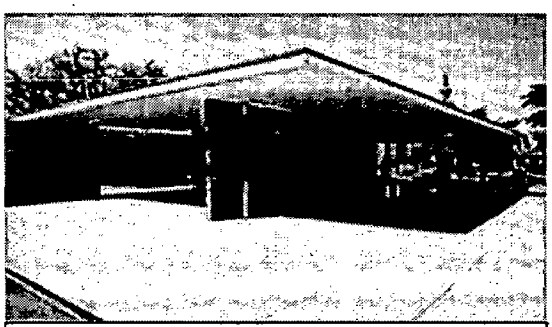


Figure 4.15 German Pavilion, Mies

2. **CHARLES-EDOUARD JEANNERET**, who chose to be known as **Le Corbusier** (October 6, 1887 – August 27, 1965), was a French, Swiss-born architect and writer, who is famous for his contributions to what now is called Modern Architecture.

In the 1920s he exhibited his plan for a city to house three million people and published his first book, Urbanisme (The City of Tomorrow). His second book, **La Ville Radieuse** (The Radiant City) appeared in 1933.

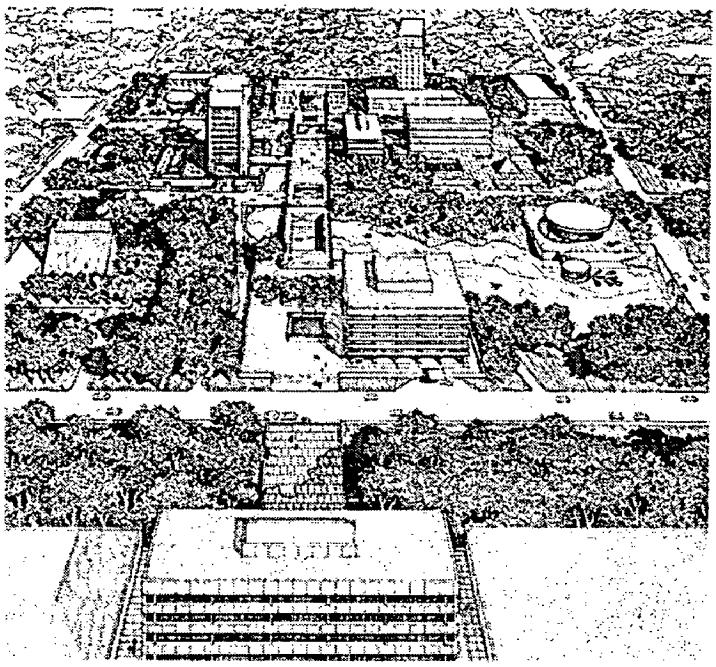


Figure 4.16 Radiant City, Le Corbusier

The theme of Le Corbusier's plans was to bring "soleil, espace, verdure" (sun, space, and green) to the city, for example, to make the city into a huge "radiant" version of Howard's Garden Cities. His solution is to open up the center of the city, erect a few towering skyscrapers, expand the parks and open spaces between them, and construct high-speed roadways and tramways on two levels radiating from the center. To achieve open space for those who live in apartments, build tall, thin apartment houses. Equip these with elevators. Set buildings on pillars that expose the ground level.

He foresaw that industrialization of the construction trades would lead to a welcome standardization. He foresaw, too, the prefabrication of houses and office blocks, whose parts were built at factories and then assembled at the building sites.

3. RICHARD BUCKMINSTER "BUCKY" FULLER (July 12, 1895 – July 1, 1983) was an American visionary, designer, architect, poet, author, and inventor.

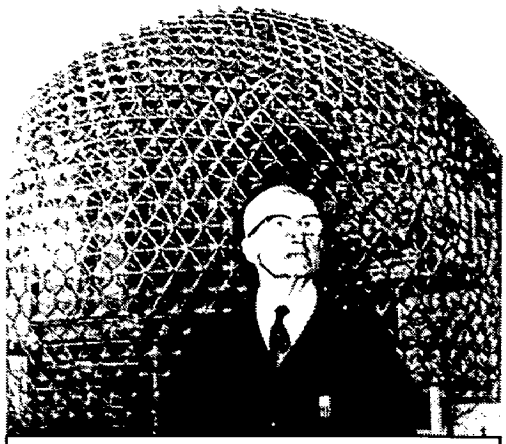


Figure 4.17 Geodesic Dome, Buckminster Fuller

Fuller was most famous for his **geodesic domes**, which can be seen as part of military radar stations, civic buildings, and exhibition attractions. Their construction is based on extending some basic principles to build simple tensegrity structures (tetrahedron, octahedron, and the closest packing of spheres). Built in this way they are extremely lightweight and stable. The patent for geodesic domes was awarded in 1954, part of Fuller's decades-long efforts to explore nature's constructing principles to find design solutions.

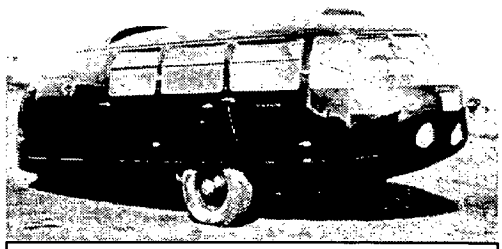


Figure 4.18 Dymaxion Car, Buckminster Fuller

Fuller had designed and built prototypes of what he hoped would be a safer, aerodynamic **Dymaxion car.**

Fuller's energy-efficient and low-cost **Dymaxion houses** garnered much interest, but have never gone into production. Here the term "Dymaxion" is used in effect to signify a "radically strong and light tensegrity structure". Designed and developed in the mid 1940s, this prototype is a round structure (not a dome) shaped something like the flattened "bell" of certain jellyfish.

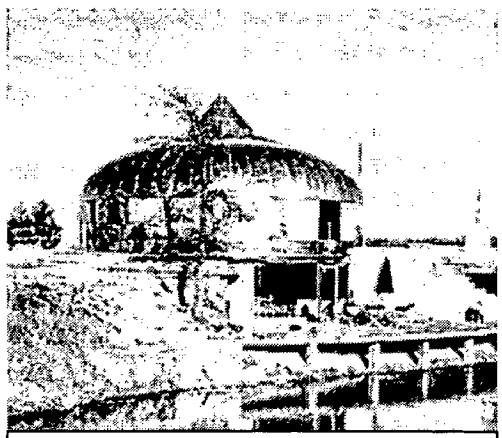


Figure 4.19 Dymaxion House, Buckminster Fuller

4.1.3 MODERN ARCHITECTS

1. LES ANTHENEA : JEAN-MICHEL DUCANCELLE

A flying saucer has landed- This futuristic pod rests directly on the water, half submerged, while its habitants enjoy spectacular panoramic vistas above and below. French naval architect **Jean-Michel Ducancelle** admits to taking inspiration from The Spy Who Loved me, and his spaceship like pods give plenty of retro-spy atmosphere.

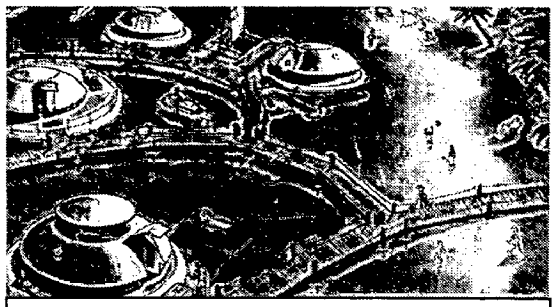


Figure 4.20 Artistic Impression, Les Anthenea

The large underwater window provides a **fish-eye view** of a magical, mystical world teaming with life.

This unique floating habitat was conceived and designed so the marine environment could be enjoyed without damaging fragile ecologies. These circular fiberglass pods are anchored to the sea bottom near delicate coral reefs, islands, lakes and bays. Constructed as virtually round spheres with ballast, optional generators, air conditioning, water system and beautifully furnished interiors, ***Anthenea*** are very comfortable on the water.

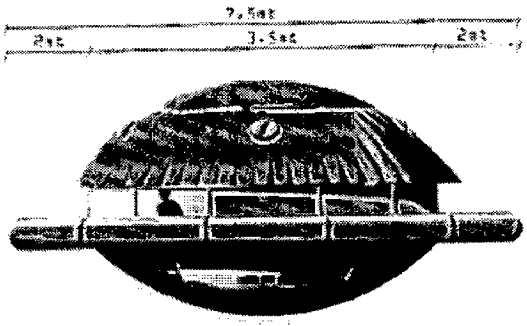


Figure 4.21 Elevation Showing Dimensions, Les Anthenea

Figure 4.22 Fish Eye View, Les Anthenea

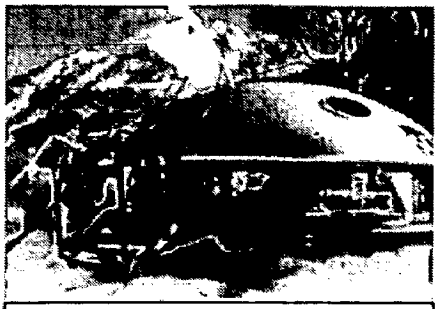


Figure 4.23 Habitat in not condusive Environment, Les Anthenea

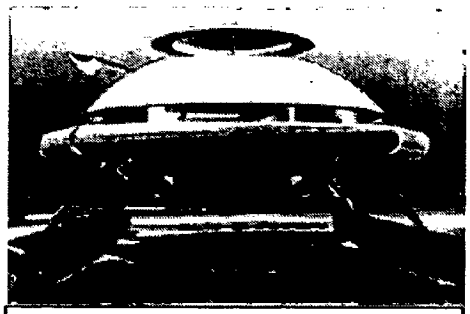


Figure 4.24 Habitat on land, Les Anthenea

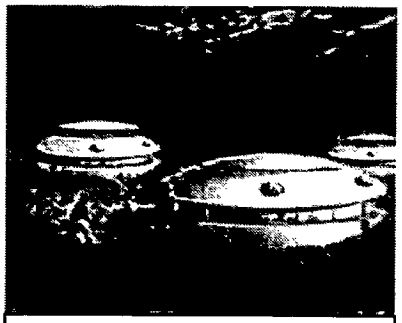


Figure 4.25 Cluster Housing, Les Anthenea

The units are constructed using composite polyester-fiberglass. They are built in sections, which are assembled at their ultimate delivery destinations and easily towed or carried by helicopter. It has a circular flotation ring around the exterior which is constructed of durable, interlocking rote-molded polyurethane sections. These provide a stable, roomy outdoor terrace for lounge chairs, diving and even equipment storage; providing a protective system against crashes and a landing for windsurfs and boats.

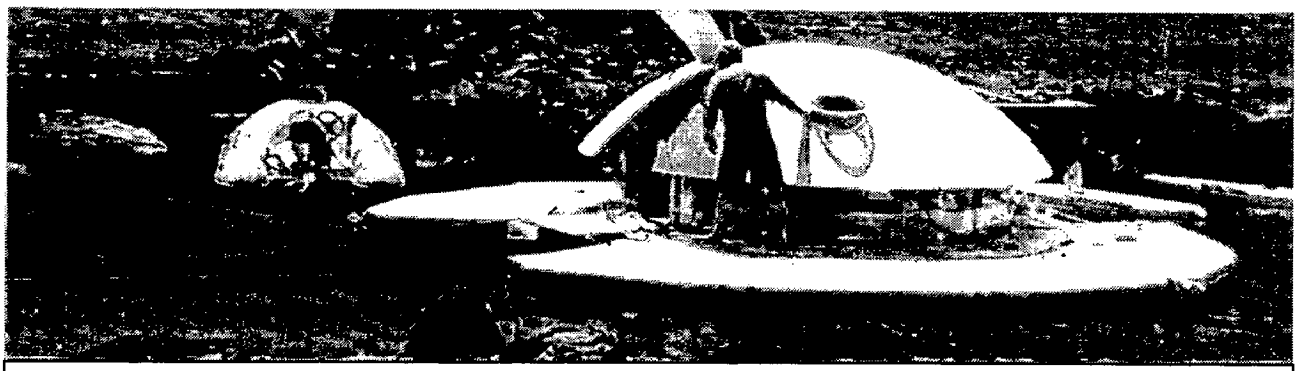


Figure 4.26 A self-contained Habitat designed for water & land

The versatility of Anthenea enables it to easily become a coursing catamaran. Whether stationary or in motion, the practical Anthenea provides both comfort and serenity.

2. LOFT CUBE : STUDIO AISSLINGER

A temporary, minimalistic doimicile to suit people of a nomadic lifestyle and living for short periods of time in large cities and dense urban areas, offering both sanctuary and social structure.

They would be constructed on the roofs of existing architecture, a treasure of sunny sites in prime urban spaces.

The loft cube has ground surface of approximately 40 m2. The organic frame structure consists of four smooth panels. The tenant is free to choose the colour, material, and wind resistance of the surfaces.

Using movable blinds, glass elements, and either solid or perforated materials. The real utopia and the big issue is whether investors will venture to rent rooftops on a grand scale and make than inhabitable for "Loft cube" users.

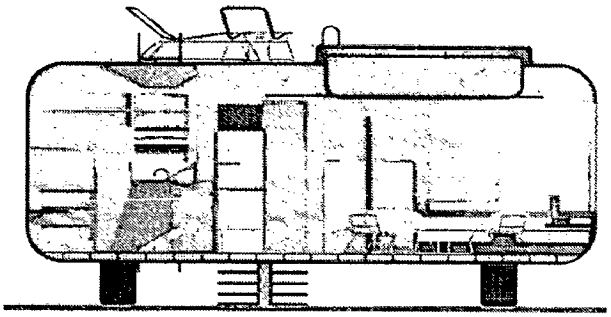


Figure 4.27 X-Sectional Elevation, Loft Cube

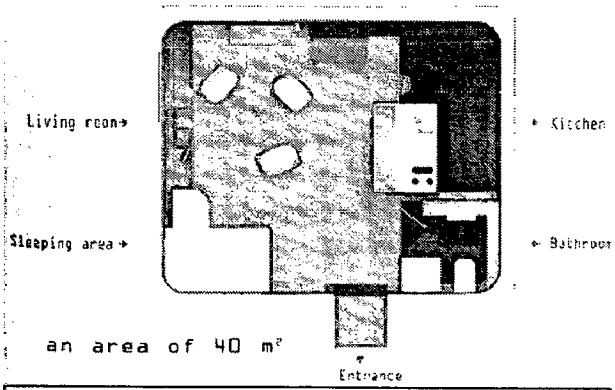


Figure 4.28 Plan, Loft Cube

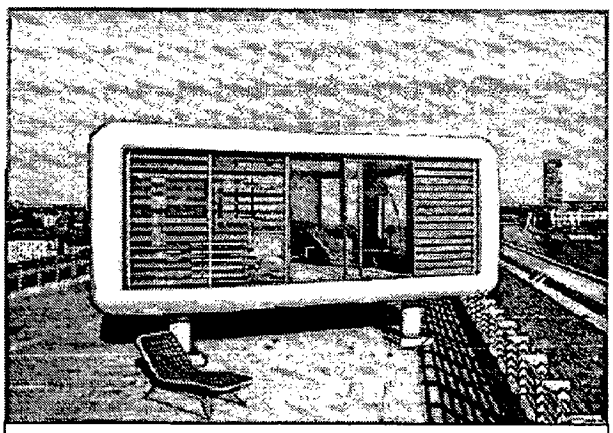


Figure 4.29 General View, Loft Cube.

3. ECOVILLE : JENNIFER SIEGAL

The project is to develop and construct a sustainable artist-in-residence live/work community. The final objective is to construct and deploy multiple versions of the Portable House (a mass-customized residential building unit), with an emphasis on native Californian drought-resistant plant materials, common gardens, and the use of sustainable building materials.

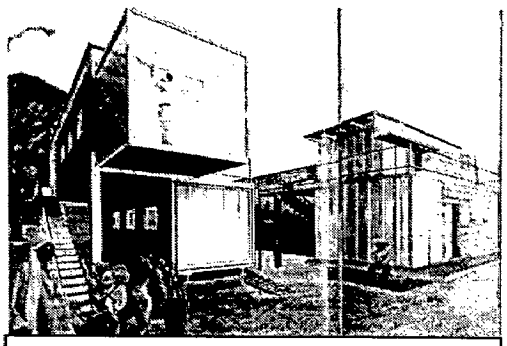


Figure 4.30 General View, Ecoville

The **Eco-Ville Development** is comprised of *a* series of attached and semi-attached buildings in multiple stacked configurations. The bottom unit provides a flexible work space, and the attached upper unit offers a well-lit open living space with access to a private roof garden.

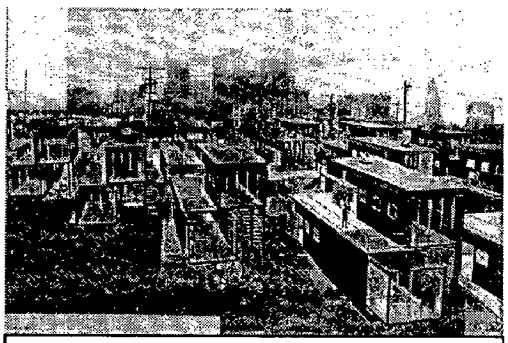


Figure 4.31 Stacked Configurations, Ecoville

In an effort to provide affordable artists' residences, the development demonstrates that individual modern design solutions are possible with mass-customization.

The Portable House's expandable/contractible spaces, the varying

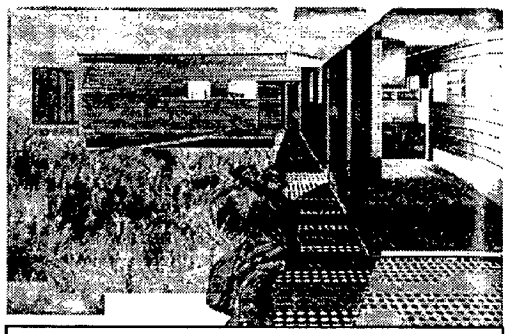


Figure 4.32 Flexible Spaces, Ecoville

degree of translucency of its materials, and its very portability render it uniquely flexible and adaptable.

Figure 4.33 Robust Spaces, Ecoville

When additional space is required, the living room structure can be extended outward to increase square footage. By design, the House can be maneuvered and reoriented to take advantage of natural light and airflow.

The Portable House's versatility, the way it moves across and rests lightly upon the landscape, provides a provocative counterpoint to the status quo housing model.

It recalls a time when the elements that constituted shelter were easily manipulated to accommodate innumerable variables and conditions. As an entity

Figure 4.34 Side Elevation, Ecoville

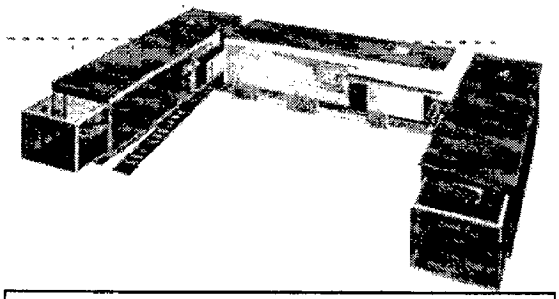


Figure 4.35 General View, Ecoville

unto itself, the Portable House adapts to or creates new social dynamics wherever it goes. Whether momentarily located in the open landscape, briefly situated in an urban space, or positioned for a more lengthy stay, the Portable House accommodates a wide range of economic needs and simple functions.

4. FILTEX-X : MMW ARCHITECTS

This house is based on two standards 20' X 40' steel containers and requires only 4 simple support points.

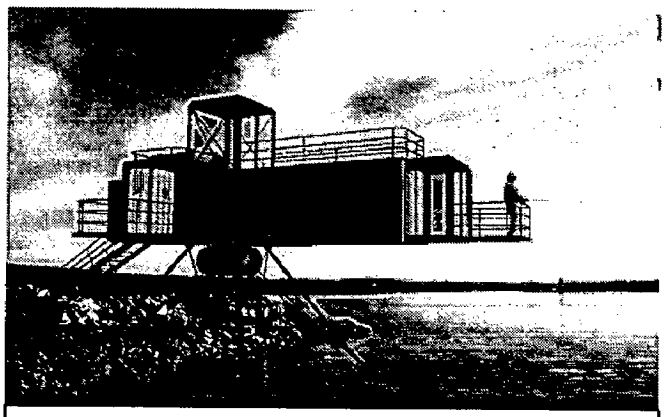


Figure 4.36 General View, Filtex-x

It can be totally self sufficient, with solar panels and tanks for drinking and waste water.

Its hinged stair, external insulation cloaking and minimal substructure can be packed away inside the containers for shipment and re-erection anywhere.

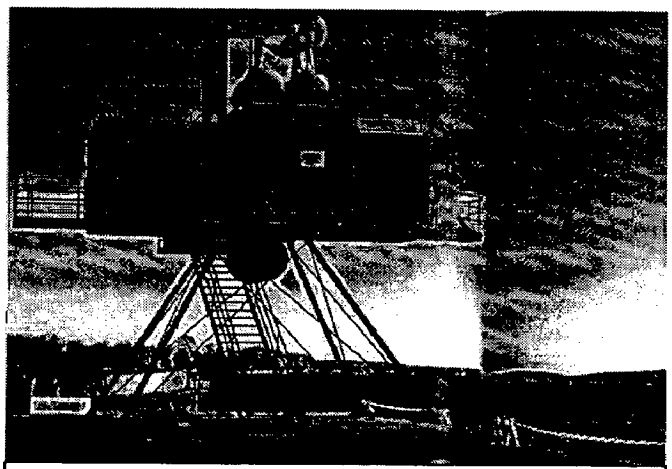


Figure 4.37 View showing solar panels & water tanks, Filtex-x

This is the realization of the dream of an altogether different kind of architecture.

5. MAISON VALISE : GREGOIRE & PETETIN

Caravans suggest a kind of active movement which, translating the importance of time into motion, is taken as the threshold for a new way of approaching the city and *a* new process in the act of Inhabiting.

Caravans represent this act as *a* primary aspect of the cityscape; they test it out, experiment with it, and place it before any other manifestation of human presence.

Caravans confuse the codes, consciously mixing up and freely interpreting traditional ideas of what constitutes public and private space. Their territory is "every man's land"; they inhabit spaces without qualities, places abandoned by the city and even ignored by building speculators.

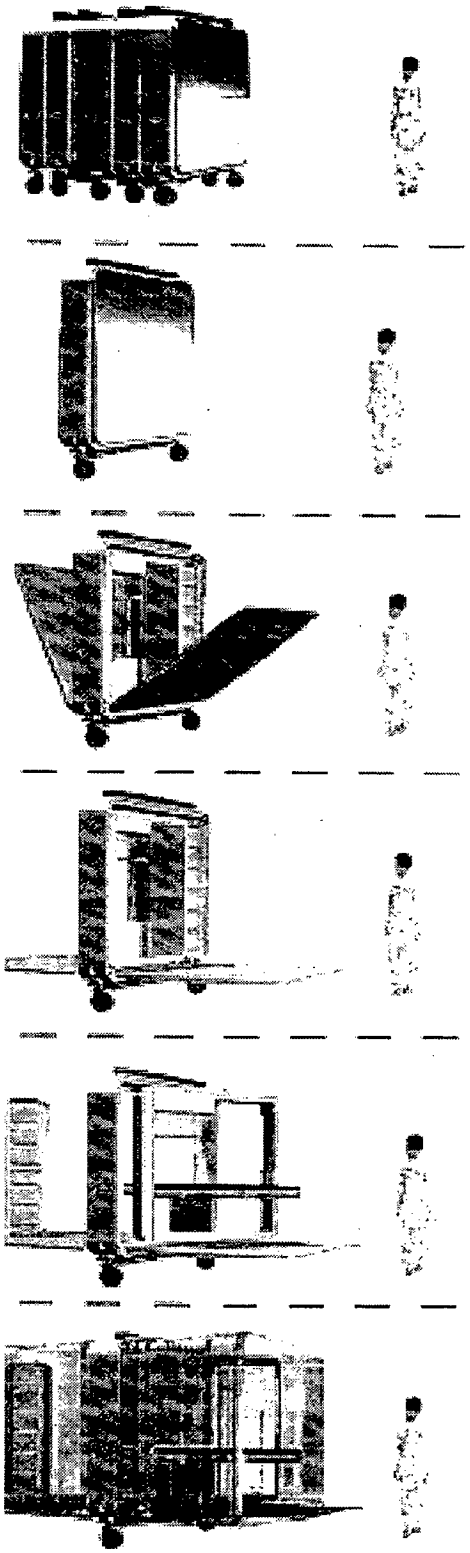


Figure 4.38 Flexibility redefined, Maison Valise

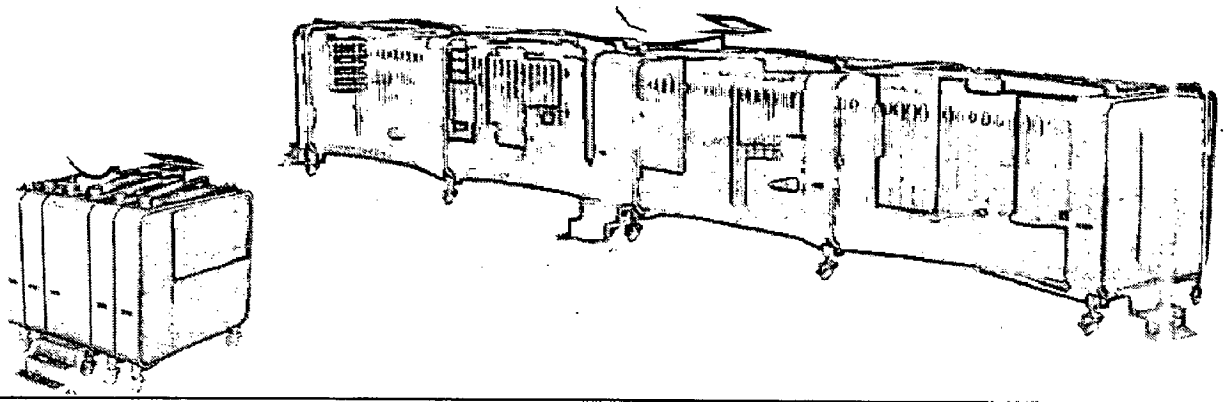
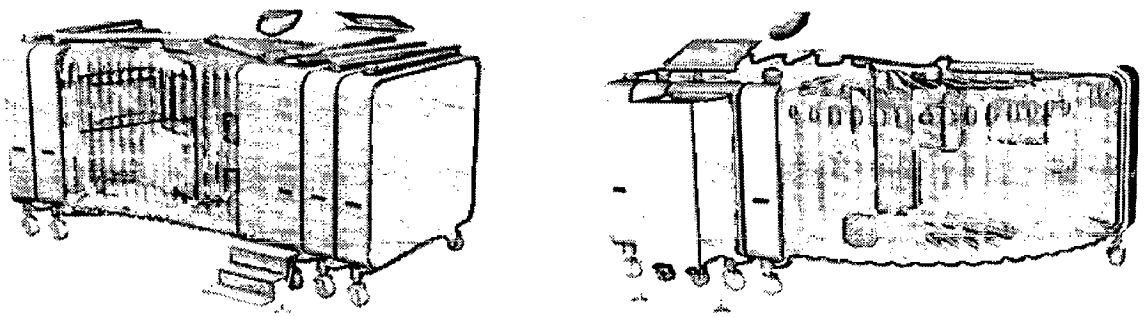


Figure 4.39 General View, Maison Valise

Their dispersing action combats the methods and actions of the city; they take hold of the cityscape in all its details.

They show that other alternatives are possible, that other ways of injecting life into the city are required.

They introduce the idea of instability in city planning - the fleeting essence of objects and acts in relation to the passage of time.



Caravans - fleeting symbols on our landscape and momentary presences in our path.

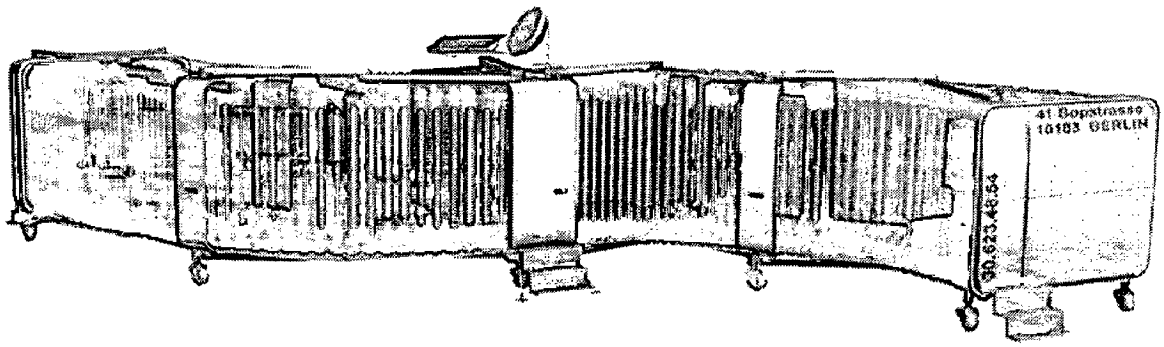


Figure 4.40 General View, Maison Valise

6. H-OUSE : MAO STUDIO

h-ouse is more a vision of housing of the future than one of the future of housing: it acknowledges some technical - constructive and infrastructural potentialities in order to respond to ongoing socio-economic changes, such as the phenomenon of de-territorialization on a global scale which is related to:

- More and more consistent migration streams that break off the culture-territory connection.
- Mobility and diffusion of both material and non-material goods.
- Radical changes in the pre-industrial ecosystem along with the deprivation of energy and food resources.

h-ouse is housing in a future where, the condition itself of the currently established rules about, housing will no longer- count; linking technology and culture to *a* specific place-I that uhicn now defines territory as such. h-ouse turns the scarcity and need for flexible spaces into an opportunity to imagine an ever-changing interior

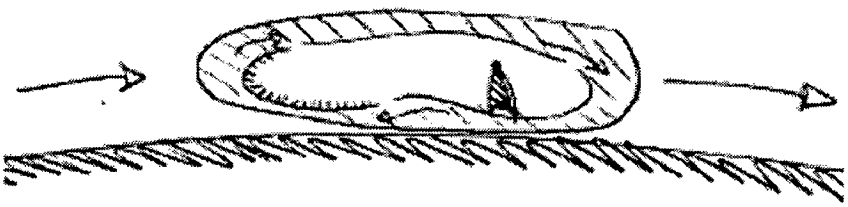


Figure 4.41 Conceptual Sketch, h-ouse

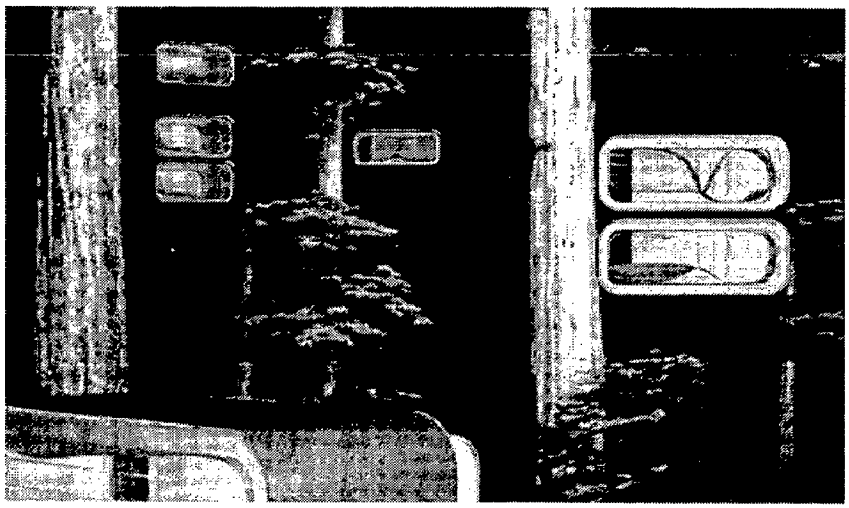


Figure 4.42 Habitat in air, h-ouse

landscape through the use of ceiling and walls as livable surfaces.

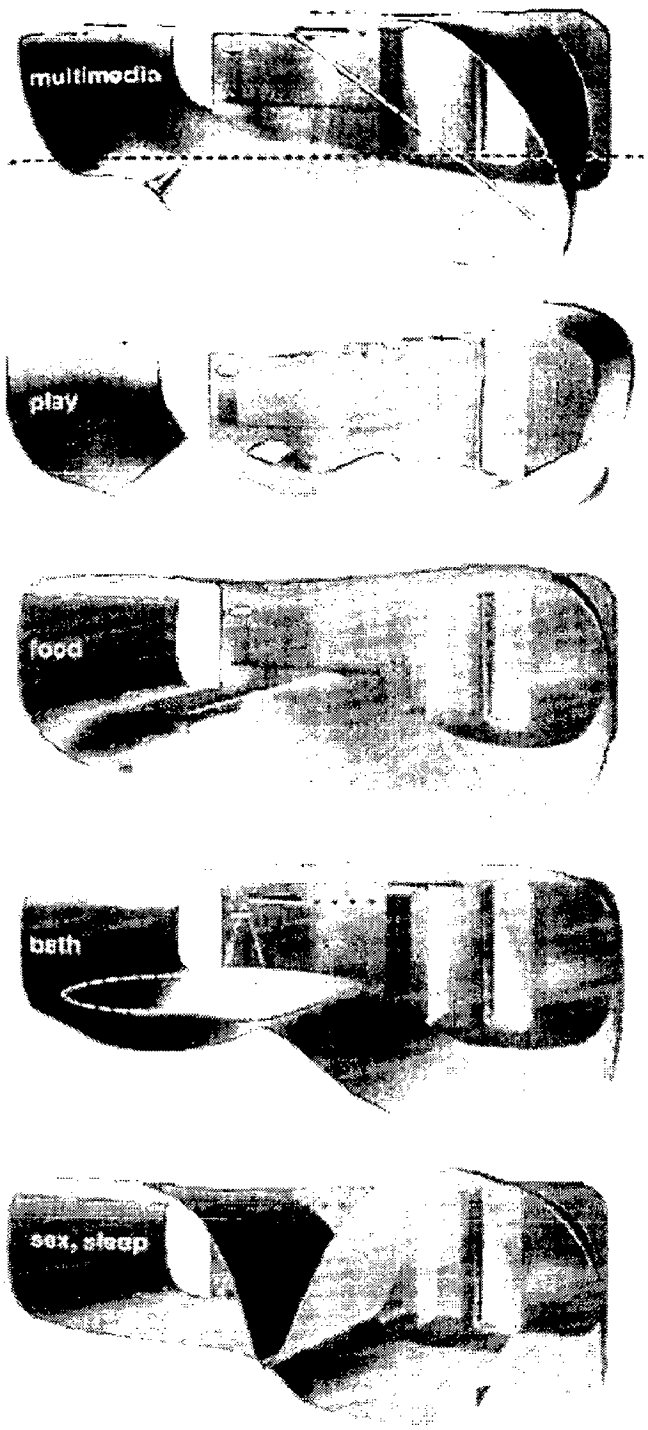


Figure 4.43 Flexibility Exhibited, h-ouse

The interior walls, floor, and ceiling are part of a continuous surface covered by three different skins (soft, soft / washable,) rotating and morphing following the different uses of the domestic space, while a "technical box" contains all the equipment (closets, cooking deck, multimedia devices, toilets etc) not compatible with an open and flexible space.

The border between interior and exterior is at the same time the interface with the outside world and the device for moving across it, in conjunction with the immaterial world and moving in the tire of the domestic world. The walls and ceiling thereby become informative surfaces.

7. TURNON : ALLES WIRDGUT

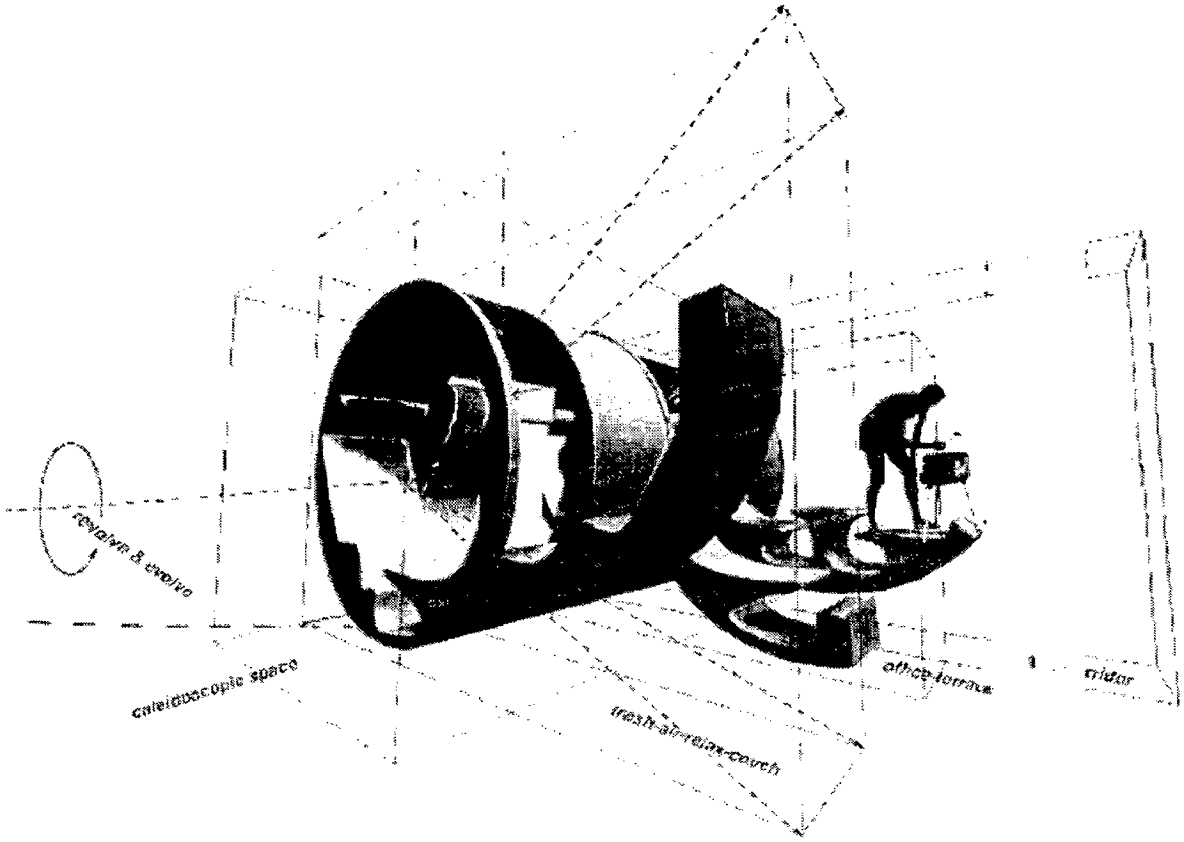


Figure 4.44 General View, Turnon

A series of revolving modules, like giant hamster wheels, contain all living programs. There is no distinction between wall, floor and spatial experience leaving a minimal foot print.

Figure 4.45 Possibilities for different activities, Turnon

An endless number of different rings – infinite possibilities of combinations.

Add as many modules as u want those which represent your sense of tastes, functionality and progress.

Figure 4.46 Different Modules, Turnon

By folding the space, ring like configurations are created which can be turned on their axes – this creates a continous inner surface where each point be rotated 360 degrees.

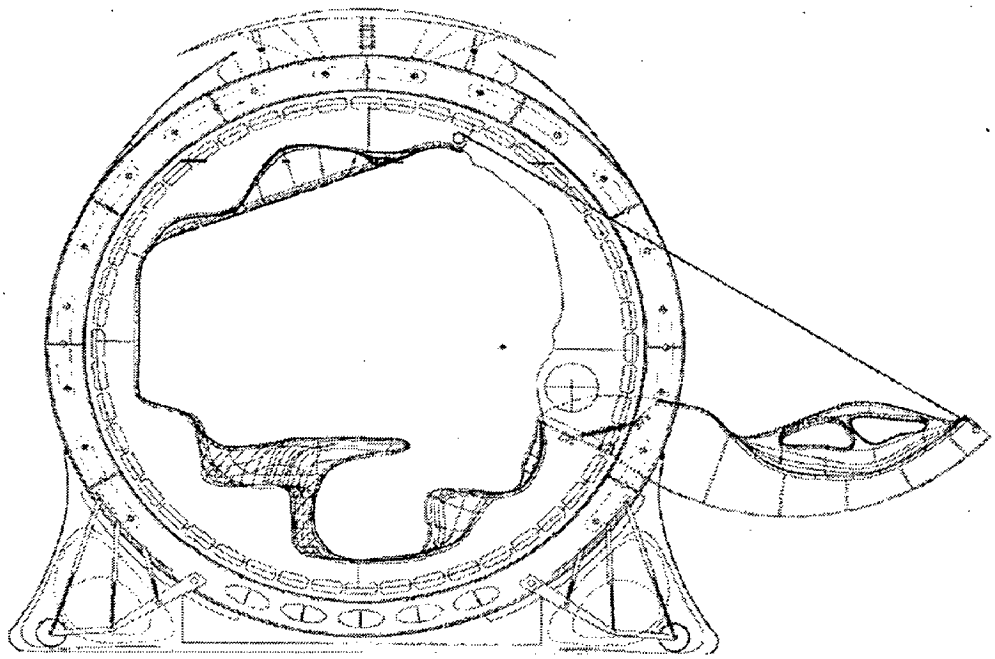


Figure 4.47 Side Elevation, Turnon

Living space reduced to its minimum: combining the various advantages of the housing and automobile industries.

4.2 VISION OF WRITERS

People like **Frank Herbert**, **Isaac Asimov**, **William Gibson**, **Larry Niven**, **J G Ballard**, and **H G Wells** have addressed various issues of futuristic urban environment by illustrating various futuristic and fictitious concepts in their writings. The dystopian and futuristic concepts Illustrated by these visionaries have come true with the advancements in the field of science and technology.

1. FRANK HERBERT

a. Float-Home

Living entity genetically designed for use as a houseboat.

"She had already vacated the float-home, and McKie could sense the living entity's resentment. He had shattered the idyll which the float-home had been conditioned to create. The float-home would return to its former affability once he was gone. They were gentle creatures, susceptible to sentient irritation"

From ***Whipping Star***, by **Frank Herbert**.

Published by Galaxy Publishing in 1969

2. WILLIAM GIBSON

a. Micro-Bachelor

A small apartment carved out of an abandoned structure.

"He used most of his first month's salary to lease a micro-bachelor in a retrofitted parking structure on Broadway Avenue, Santa Monica. The floor of his apartment was terraced against the original slope of the parking garage. He slept at the deep

end, on an inflatable guest bed he'd ordered from the Shopping Channel. There were no windows"

From ***Idoru***, by **William Gibson**.

Published by Putnam in 1996

b. Nano Tech Buildings

Enormous buildings built with nanotech fibers

The scale of the buildings is left to the imagination. However, if nanotechnology provides us with materials that combine exceptional strength with lightness, buildings can grow much taller.

"We were uncertain how you might feel about new buildings. You mean the nano tech buildings? Layne had been struggling to keep his eyes open. Yes some people find them disturbing.

He knew their sheer brutality of scale from constructs, but virtually had failed to convey the peculiarity of their apparent texture, a streamlined organicism. They are like Giger's paintings of New York, Yamazaki had said but the reference had been lost on Laney. Now he sat on the edge of his bed staring blankly out at these miracles of the new technology, as banal and as sinister as such miracles usually were, and they were only annoying; the world's largest inhabited structures"

From ***Idoru***, by **William Gibson**.

Published by Putnam in 1996

3. LARRY NIVEN

a. Floating Island

Large artificial islands floating on Earth's seas

Putting aside questions about maintenance and seasickness, a floating island makes good sense. If you don't like the weather, just tow it to a new location.

"Xanadu was the second of the Floating Island chain of independent international corporate entities. Ultimately they would be strung along the world's equator; new islands bringing life to a watery desert. Six of the islands were in place, two as mere skeletons. From the air they looked a little like lily pads, a little like snowflakes five kilometers in diameter. Counting ponds and water recreation areas, the farms and breakwaters, each enclosed an area closer to forty square kilometers"

From ***Saturn's Race***, by **Larry Niven**.

Published by Tor in 2000

4. RAY BRADBURY

a. A Smart Home With Cyber Crumbs – *Bradbury's Happylife Home*

An automated multi-media home, which provided the good life to its inhabitants

Ray Bradbury shared the 50's fascination with gadgets and technology for the home. In 1950, fewer than 10% of homes had televisions. By 1960, over 90% did. In reading the following excerpt, see how quickly Bradbury skips over the intervening generations of technology to get to what people in 1950's really wanted.

"They walked down the hall of their soundproofed Happylife Home, which had cost them thirty thousand dollars installed, this house which clothed and fed and rocked them to sleep and played and sang and was good to them. Their approach sensitized

a switch somewhere and the nursery light flicked on when they came within ten feet of it. Similarly, behind them, in the halls, lights went on and off as they left them behind, with a soft automaticity"

From ***The Illustrated Man***, by **Ray Bradbury**.

Published by Doubleday in 1951

5. H G WELLS

a. Town In One Building

This is the basic idea behind an arcology, or other single structure that is intended to provide living space and mall.

"A thing Graham had already learnt, and which he found very hard to imagine, was that nearly all the towns in the country, and almost all the villages, had disappeared. Here and there only, he understood, some gigantic hotel-like edifice stood amid square miles of some single cultivation and preserved the name of a town -- as Bournemouth, Wareham, or Swan age. Yet the officer had speedily convinced him how inevitable such a change had been. The old order had dotted the country with farmhouses, and every two or three miles was the ruling landlord's estate, and the place of the inn and cobbler, the grocer's shop and church -- the village. Every eight miles or so was the country town, where lawyer, corn merchant, wool-stapler, saddler, veterinary surgeon, doctor, draper, milliner and so forth lived. Every eight miles -- simply because that eight mile marketing journey, four there and back, was as much as was comfortable for the farmer. But directly the railways came into play, and after them the light railways, and all the swift new motor cars that had replaced wagons and horses, and so soon as the high roads began to be made of wood, and

rubber, and Eadhamite, and all sorts of elastic durable substances -- the necessity of having such frequent market towns disappeared. And the big towns grew. They drew the worker with the gravitational force of seemingly endless work, the employer with their suggestions of an infinite ocean of labour.

From ***When the Sleeper Wakes***, by **H.G. Wells**.

Published by Unknown in 1899

4.3 VISION OF FILM MAKERS

Architecture is used as a communication tool through which directors and film makers send certain messages. Architecture plays a important role as a good signifier, signifying different aspects of society (economical, political, sociological, ecological, technological, etc.)

1. FRITZ LANG (Metrpolis, 1927)

Fritz Lang's tale of class struggle relies heavily on rich set designs for its impact. This artistic re-presentation of the city of the future has remained as one of the most striking images of modernity. Lang's early architectural training is evident in the way atmosphere and narrative are developed through the use of expressionistic and symbolic architectural signifiers. Lang visuals show us a very crowded and busy, yet extremely beautiful metropolis, where the ruling class inhabits vaulting, futuristic art deco buildings that fly up high up into the sky.

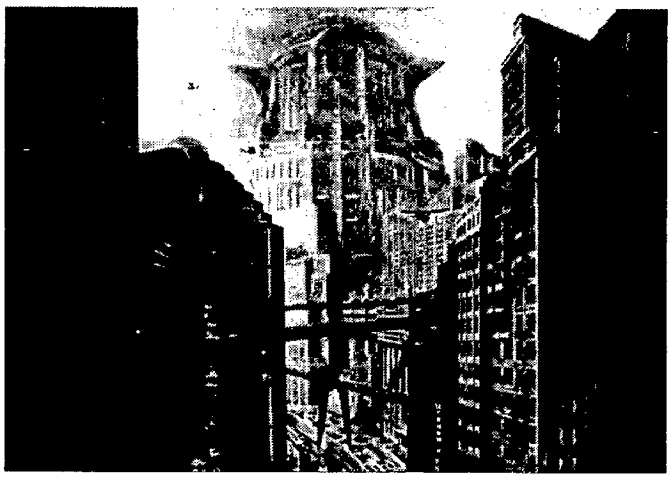


Figure 4.48 The "New Tower of Babel", Metropolis' (1927) central skyscraper, home of the Elite

As a whole, film serves to reflect Lang's vision of a technologically dependent society and in turn comments upon the industrialization of his homeland.

The film was much loved by Hitler and Fritz Lang was even offered a job creating films for the Third Reich. Lang, being half Jewish, however, refused the offer and escaped to the United States where he continued his successful career. This movie could have been a foreshadowing of what the world would have been like if the industrial revolution had kept growing.

2. RIDLEY SCOTT (Blade Runner, 1982)

Ridley Scott's 1982 film has become the most credible cinematic futuristic manifesto of our age. Through its informed vision of a future Los Angeles, the film offers a deep insight into the future of architecture and urbanism, while also providing commentaries on contemporary realities and trends.

Syd mead, production designer of Blade Runner talks about the motive and inspiration behind the set design:

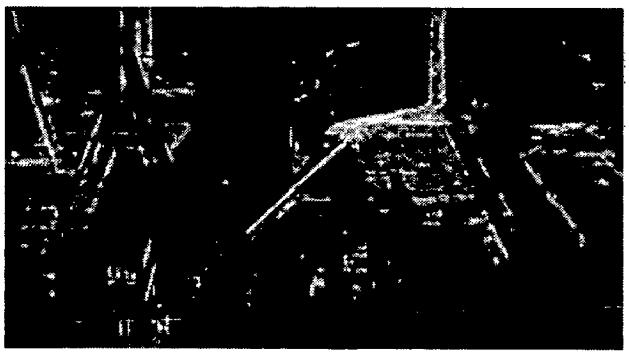


Figure 4.49 Concept drawing for Blade Runner 1982) by Syd Mead.

"I took the two world trade towers in New York City and the New York street proportions as a .today' model, and expanded everything vertically about two and a half times. This inspired me to make the bases of the buildings sloping to cover about six city blocks, on the premise that you needed more ground access to the building mass." [Fig 4.49]

Ridley Scott's Blade Runner (1982) like Metropolis (1927) reveals class structure through its vertical architecture.

"*Things are retrofitted after the fact of the original manufacture because the old, consumer-based technology wasn't keeping up with demand. Things have to work on a day-to-day basis and you do whatever necessary to make it work. So you let go of the style and it becomes pure function. The whole visual philosophy of the film is based on this social idea*" Syd Mead.

3. LUC BESSON (The Fifth Element, 1997)

Luc Besson's The Fifth Element (1997) manages to present a very rich multilayered world that extensively comments on the possibilities of future architectural developments within existing cities. The film offers a provocative vision of the future of Manhattan two hundred and fifty years from now [Fig. 4.50].

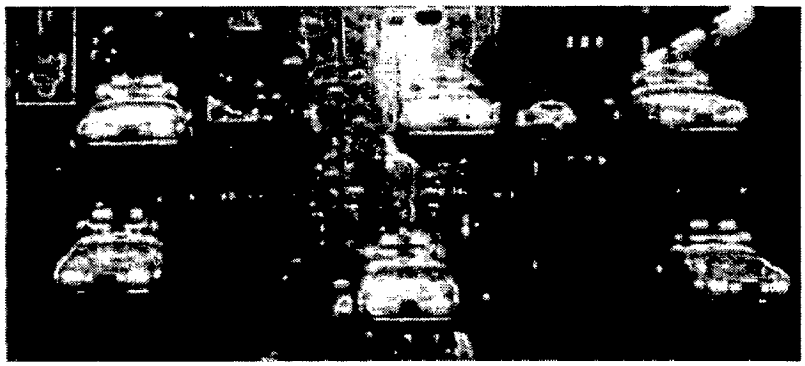


Figure 4.50 : New York in 2259; a bottomless urban canyon. (The Fifth Element, 1997)

The viewer is told, the world has a population of over 200 billion and New York City has become the capital of the world. The city has, like in the past, been forced to grow taller, as a result, the metro transportation system is forced to be integrated vertically into the building [Fig. 4].

Figure 4.51 Due to the vast depth of the city, public transport trains travel up and down the vertical walls of the buildings.

4. STEPHEN SPIELBERG (Minority Report, 2002)

Minority Report is probably the only film of recent years that attempts to portray not only an exciting narrative set against a futuristic backdrop, but also a credible future based on an intelligent and informed prediction of the present.

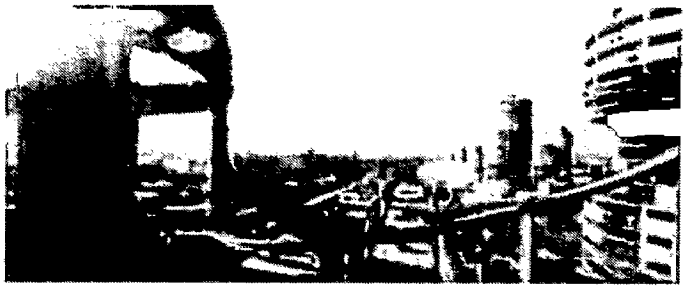


Figure 4.52 Minority Report's (2002) Washington D.C. in the year 2054: multi-storey residential towers interconnected by an intricate network of horizontal, inclined and vertical 'roads'.

The film maker show cases the consideration of historic conservation in the era of high technology; with effect in his film. Minority report advocates the city of Washington evolving in three different zones: the Washington capitol area, where the historic buildings still exist and stand proud; the upscale "bedroom community" across the river that has developed vertically [Fig21]; and the decaying part of the city that has not kept up with the technological advances afforded by the rich.

Figure 4.53 Historic row houses.

Let us revere, let us worship, but erect and open-eyed, the highest, not the lowest; the future, not the past!

- Charlotte Perkins Gilman

CHAPTER – 5

ANALYSIS

5.1 EXAMPLES SUPPORTING VALIDITY OF TOPIC

Futuristic architecture depicted in science fiction of earlier times has come true in present time and hence Futuristic Architecture illustrated in modern science fiction is going to be the Future.

Following are some examples that support the phrase mentioned above:

5.1.1 TOWN IN ONE BUILDING

This is the basic idea behind an arcology, or other single structure that is intended to provide living space and mall.

"A thing Graham had already learnt, and which he found very hard to imagine, was that nearly all the towns in the country, and almost all the villages, had disappeared. Here and there only, he understood, some gigantic hotel-like edifice stood amid square miles of some single cultivation and preserved the name of a town -- as Bournemouth, Wareham, or Swanage. Yet the officer had speedily convinced him how inevitable such a change had been. The old order had dotted the country with farmhouses, and every two or three miles was the ruling landlord's estate, and the place of the inn and cobbler, the grocer's shop and church -- the village. Every eight miles or so was the country town, where lawyer, corn merchant, wool-stapler, saddler, veterinary surgeon, doctor, draper, milliner and so forth lived. Every eight miles -- simply because that eight mile marketing journey, four there and back, was as much as was comfortable for the farmer. But directly the railways came into play, and after them the light railways, and all the swift new motor cars that had replaced

waggons and horses, and so soon as the high roads began to be made of wood, and rubber, and Eadhamite, and all sorts of elastic durable substances -- the necessity of having such frequent market towns disappeared. And the big towns grew. They drew the worker with the gravitational force of seemingly endless work, the employer with their suggestions of an infinite ocean of labour."

From - ***when the sleeper wakes***, By **H.G. Wells** in 1899

SHIMIZU MEGA CITY, Tokyo, Japan

The **Shimizu TRY 2004 Mega-City Pyramid** is a proposed project for construction of a massive pyramid over Tokyo Bay in Japan. The structure would be 12 times higher than the Great Pyramid at Giza, and would house 750,000 people. The structure would be 2,004 meters (6,575 feet) high and would answer Tokyo's increasing lack of space.

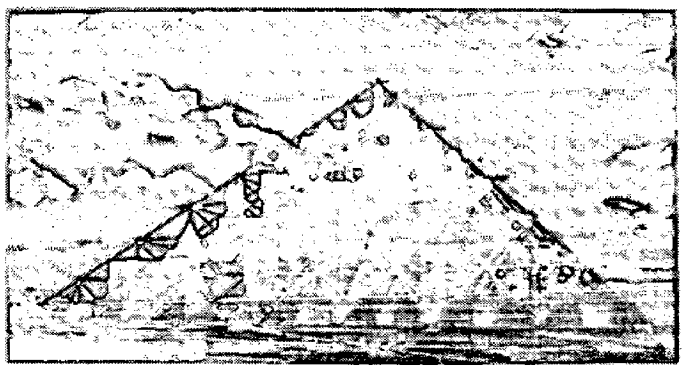


Figure 5.1 The Pyramid City Arcology or Megacity as featured on the Discovery Channel's Extreme Engineering programs.

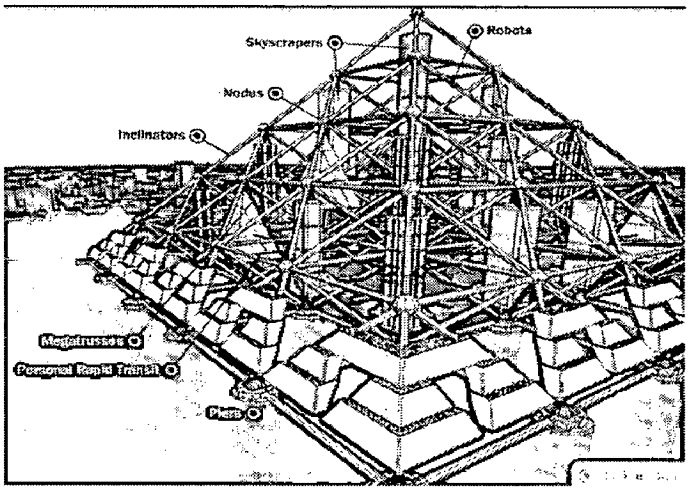


Figure 5.2 The Pyramid City Arcology or Megacity as featured on the Discovery Channel's Extreme Engineering programs.

The proposed structure is so large that it cannot be built with currently available materials, due to their weight. The design relies on the future availability of super-strong lightweight materials based on **carbon nanotubes**.

5.1.2 COFFIN RACK

A hotel with very (very!) small rooms.

Looking for an inexpensive place to stay? In the city in Japan? You might want to try a coffin hotel. Lots cheaper than a regular room - maybe because a coffin hotel is a room stripped down to the bare essentials - the parts you use the most.

"The New Rose Hotel is a coffin rack on the ragged fringes of Narita International. Plastic capsules a meter high and three long, stacked like surplus Godzilla teeth in a concrete lot off the main road to the airport. Each capsule has a television mounted flush with the ceiling. I spend whole days watching Japanese game shows and old movies."

From **The Science Fiction Yearbook**, by **William Gibson**.

Published by Omni Publications in 1984

CAPSULE HOTEL, JAPAN

A **capsule hotel** is a hotel system of extremely dense occupancy. Guest space is reduced in size to a modular plastic or fibreglass block roughly 2 m by 1 m by 1.25 m, providing room to sleep and little more, although facilities usually include a television and other electronic entertainment. These capsules are then grouped and stacked, two units high. Luggage is usually stored in a locker away from the capsule. Privacy is maintained by a curtain at the open end of the capsule but noise pollution can be high. Washing facilities are

Figure 5.3 Capsules in Osaka, Japan

communal and there are often restaurants, or at least vending machines, and other entertainment facilities.

This style of hotel accommodation was developed in Japan and has not gained popularity outside of the country, although Western variants with larger accommodations are being worked on (such as the StayOrange.com Hotel, Yotel and the Pod Hotel, in Asia, London and New York respectively).

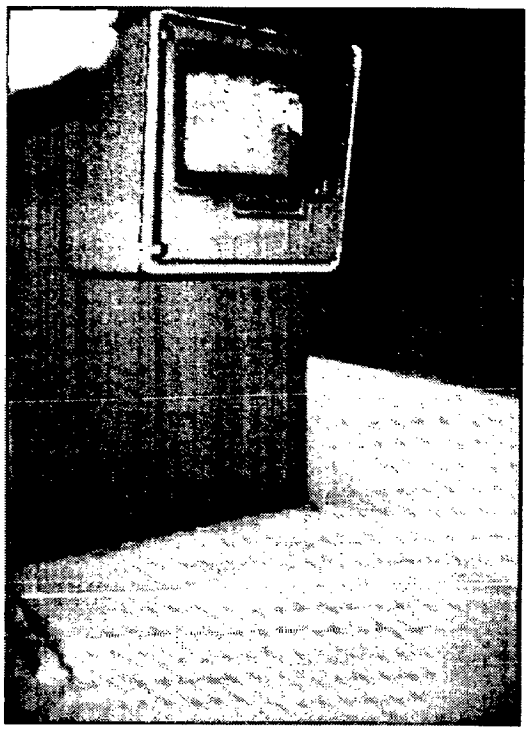


Figure 5.4 Capsule Hotel in Kofu city, Japan

The benefit of these hotels is convenience and price, Such hotels are not necessarily regarded as only an option for those with lower incomes— a typical customer would be a business salaryman, someone looking for a place to stay after drinking, or someone who missed the last train and doesn't want to waste money just for an overnight sleep. Some capsule hotels offer low daytime discounts for those needing an afternoon nap or other mid-day hotel accommodations.

Figure 5.5 View in a capsule, with TV in the upper left corner

5.1.3 MACHINE CITY

A city that is a self-maintaining whole entity.

This is a very early reference to the idea of a city that is really one large, complex machine. It is self-maintaining; it is designed to exist forever, without any intervention by man.

"The city was divided into two sections, a section of many strata where machines functioned smoothly, save for a deep humming beat that echoed through the whole city like a vast unending song of power.

Seven or even seventy million years don't mean much to old Mother Earth. She may even succeed in wearing down those marvelous machine cities...

When the builders made those cities, they forgot one thing. They didn't realize that things shouldn't go on forever."

From - ***Twilight***, by **John W. Campbell.**

Published by Astounding Science Fiction in 1934

BAHRAIN WTC

The country of Bahrain has been approving some interesting and eye-popping developments in the realm of green architecture. Especially interesting is the new Bahrain World Trade Center located in the city of Manama. The 50-story complex contains two identical towers that rise over 240 meters in height. The sail-shaped

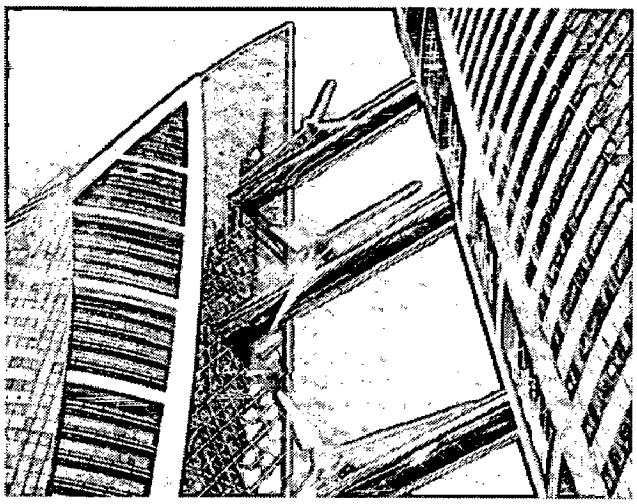


Figure 5.6 View showing Towers & Wind Mills, Bahrain WTC

buildings offer a visually striking silhouette, appropriately referencing the maritime environment of this small Middle Eastern island, and boast one very unique feature — 3 giant wind turbines tying the two "sails" together.

The design firm of **Atkins** did not believe that the look of the project was enough, and felt that it was important to incorporate sustainability features into this design. They first attempted to bring in solar panels into the project, but found that the extreme heat conditions of Bahrain made it an unfeasible proposition. So they turned to a second option, and came up with an even more striking image, that of the three 29 meter wind turbines, each supported by a 30-meter bridge spanning between the two towers.

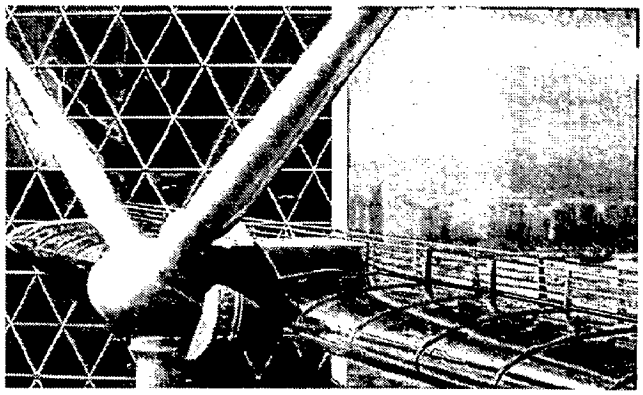


Figure 5.7 View of a Wind Mill, Bahrain WTC

The floor plan was key in making this feature work. The wing-like towers help to funnel and accelerate the wind velocity between them. Furthermore, the difference in the vertical shape of the towers should help reduce the pressure differences between the bridges, which, when combined with an increased wind speed at the higher levels, should provide an equal velocity amongst the turbines. All this will provide for an even greater efficiency in the powering of the generators.

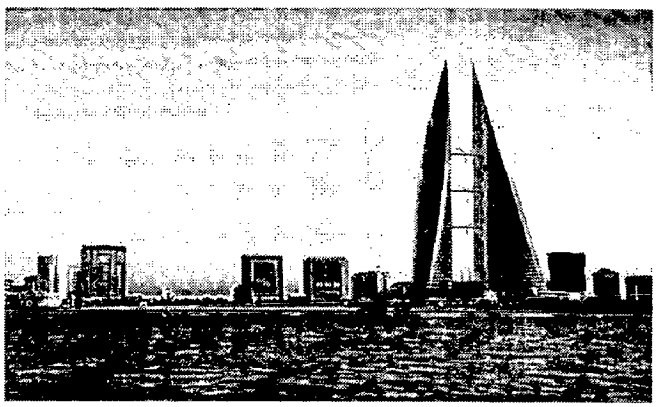


Figure 5.8 General View, Bahrain WTC

SOM's PEARL RIVER TOWER

Hongkong, china

The 71-story Pearl River Tower, a headquarters for the CNTC Guangdong Tobacco Company, is scheduled to be completed by October 2009. The tower contains several different exterior envelopes, including a southern double-layer curtain wall that contributes to the HVAC system, and an integrated photovoltaic system (above left and middle). The top-floor business club has an operable skylight for ventilation.

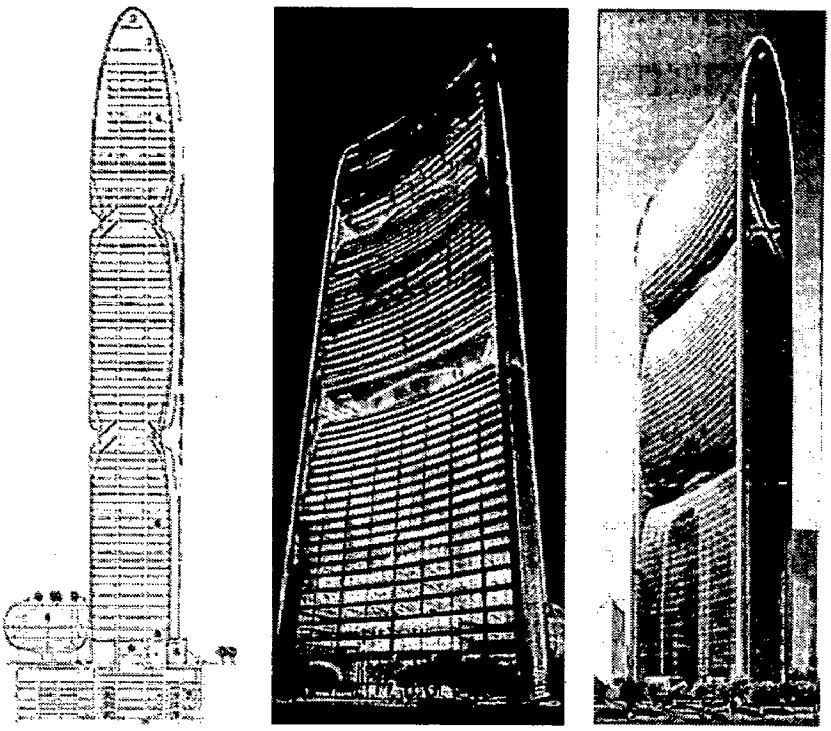


Figure 5.9 Section and Views, Pearl River Tower

To make the tower a "net" zero energy building, the designers had a series of small steps to follow. These divide into four categories: reduction, reclamation, absorption, and generation.

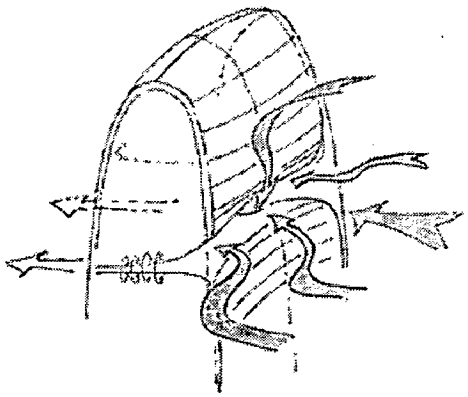


Figure 5.10 Wind Turbine Concept, Pearl River Tower

To reach the final goal of net zero energy, the design team incorporated three power-generating technologies: wind, integrated photovoltaic and micro turbines.

5.1.4 ACTIVE SKIN/FACADES OF BUILDING

Images depicting the (entire) facades of the building used as advertisement billboards.

Figure 5.11 Image from the movie "Blade Runner", 1982

The active facades of the buildings signify a economically driven society, where no considerations to individualism is given.

Architecture for our time cannot afford to be static

Figure 5.12 Image from the movie "Minority Report", 2002

With the highest technology or more mundane means, a few architects are synthesizing building and communication in startling ways.

Marshal Mc luhan anticipated this development long ago, well before he died in 1980.

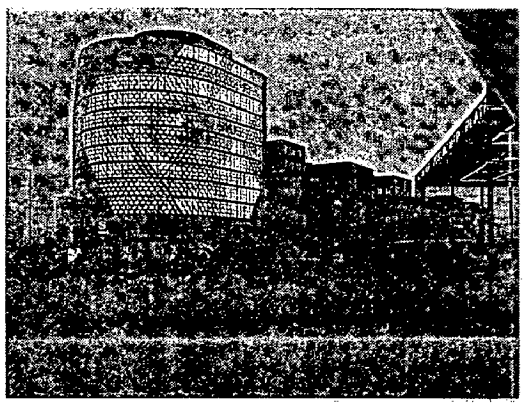


Figure 5.13 SOM's Analog Tri vision Facade, China

In the jianbei district of chongqing, china, a prominent 550 ft. long container for shops and offices exerts its presence through synchronized, rotating graphics that echo the commercial zone's numerous billboards.

5.2 SCI-FI IN VISUAL MEDIA

IDENTIFIED SCIENCE FICTION FILMS

1. Blade Runner (1982)

2. Minority report (2002)

3. The fifth element (1997)

4. Equilibrium (2002)

5.2.1 ANALYSING IDENTIFIED SCIENCE FICTION FILMS

BLADE RUNNER (1982)

LOS ANGELES (2019)

Ridley Scott's 1982 film has become the most credible cinematic futuristic manifesto of our age. Through its informed vision of a future Los Angeles, the film offers a deep insight into the future of architecture and urbanism, while also providing commentaries on contemporary realities and trends.

The film hypothesizes that by the year 2019, Los Angeles will be a city that supports a population of over 90 million people (Round 2002). The colonization of the elite to utopian "off-world" planets has resulted in the large scale immigration of the upper class, leaving the city populated by a mainly ethnic underclass. The cityscape is in a state of urban decay and has become totally synthetic. The middle-class suburbs have been overtaken by the city transforming into a sprawling industrial zone, while huge mega-structures now dominate the center of the city [Fig. 3].

Figure 5.14: The Tyrell Corporation's 700-storey headquarters pyramid resembles a Mayan temple. (Blade Runner 1982)

Syd mead, production designer of Blade Runner talks about the motive and inspiration behind the set design:

"I took the two world trade towers in New York City and the New York street proportions as a .today' model, and expanded everything vertically about two and a half times. This inspired me to make the bases of the buildings sloping to cover about six city blocks, on the premise that you needed more ground access to the building mass." [Fig. 4]

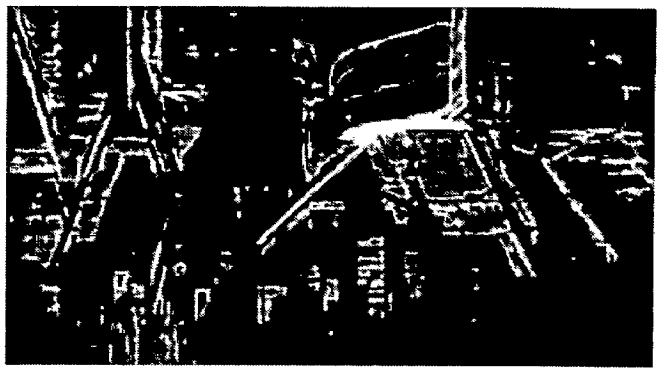


Figure 5.15: Concept drawing for Blade Runner 1982) by Syd Mead. Megastructures loom bove the decaying city beneath.

The Los Angeles of 2019 is essentially a city of contradiction; high rises, pyramids and glass towers intermingle with revival architecture, historical buildings, and the debris of past urban sprawl [Fig. 8]. The visual layering of architectural typologies from various cultural pasts creates a post-modern image of a globalized world.

Figure 5.16: Bloated Byzantine columns support the Bradbury Building. (Blade Runner, 1982)

Due to the drain of wealth that accompanied the mass immigration, the city becomes a place where the whole economic process is slowed down. The removal of old buildings begins to cost far more than the construction of a new ones. Instead of tearing down buildings or dismantling established technologies, modifications and additions are thus added to existing structures. What results is a deeply layered city, where new use has grown over and subsumed Los Angeles' architectural history (the film utilizes such historical Los Angeles buildings as the Bradbury Building, Union Station and the Yukon Hotel for several of its most important scenes).

New structural elements extend through old buildings to support new construction above; while ducts, signs and service pipes run, snake like, over the old façades. As the cables and generator tubes delivering air and waste go up the old buildings, the street level becomes nothing more than a service alley to the Mega structures above [Fig. 6].

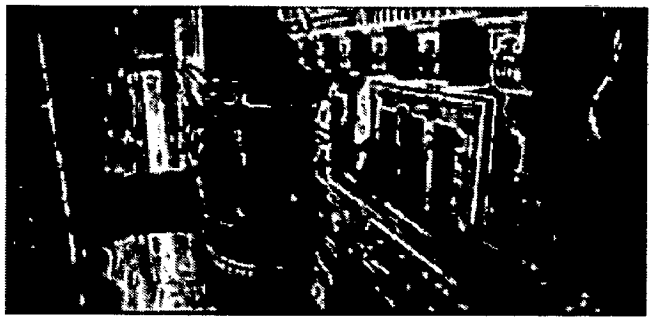


Figure 5.17 The Bradbury Building's exterior is covered with retro-fitted ducts and structural members that support the Mega structure above.

"*Things are retrofitted after the fact of the original manufacture because the old, consumer-based technology wasn't keeping up with demand. Things have to work on a day-to-day basis and you do whatever necessary to make it work. So you let go of the style and it becomes pure function. The whole visual philosophy of the film is based on this social idea*" Syd Mead.

The externalization of infrastructural services (heating, cooling, water, gas) brings to mind Richard Rogers' and Renzo Piano's Pompidou centre, 1977 [Fig. 7] The thoughtfulness of the underlying concept, and the layering of images and associations, makes Blade Runner one of the most discussed and influential films of our times.

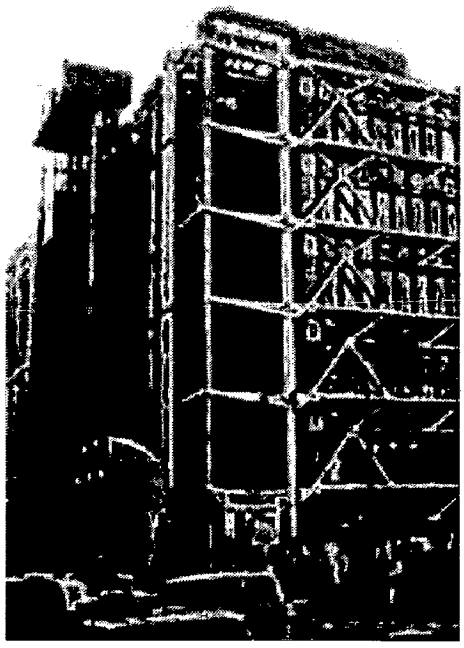


Figure 5.18 External structural members and services, Centre Pompidou.

Minority Report (2002)

Washington D.C. (2054)

Minority Report is probably the only film of recent years that attempts to portray not only an exciting narrative set against a futuristic backdrop, but also a credible future based on an intelligent and informed prediction of the present.

Figure 5.19 Minority Report's (2002) Washington D.C. in the year 2054: multi-storey residential towers interconnected by an intricate network of horizontal, inclined and vertical 'roads'.

Washington of 2054 has evolved into three distinct zones: the Washington Capitol area where the monuments still stand proud; the upscale "bedroom community" across the river that has developed vertically [Fig 1]; and the decaying part of the city that has not kept up with the technological advances afforded by the rich.

Figure 5.20 Historic row houses. (Minority Report, 2002)

While government buildings are hostile, reflective, and metallic; the grass in the city is still green, and historic row houses still stand proud [Fig. 2] presenting the post-modernist possibility of harmony between the old and the new.

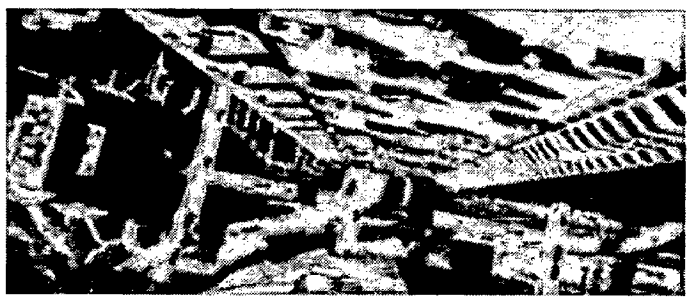


Figure 5.21 The ultimate integration of buildings and infrastructure: roads climb up the façade of a residential block, (Minority Report, 2002)

The integration of infrastructure and cityscape presented so well by such films as Metropolis (1927) and The Fifth Element (1997) is here perfected. A transport network of magnetic levitation vehicles is seamlessly built

into the facades of most of the new buildings [Fig. 3]. It seems that the buildings and the vehicles exist to complement each other. Inclining highways forms part of the façades dropped like waterfalls and merging with horizontal roads. The network of highways functions in all three dimensions [Fig. 1], as the road surface totally abandons its dependence on gravity. One must however question the feasibility of such vehicles when considering the rest of the still horizontal city, where the viewer is clearly shown that the old road network still exists.

The Fifth Element (1997)

New York. (2259)

Luc Besson's The Fifth Element (1997) manages to present a very rich multilayered world that extensively comments on the possibilities of future architectural developments within existing cities. The film offers a provocative vision of the future of Manhattan two hundred and fifty years from now [Fig. 4].

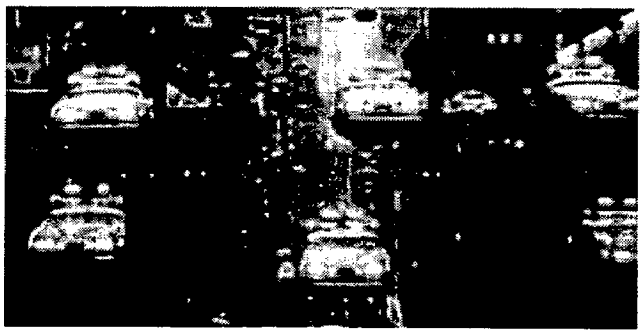


Figure 5.22 New York in 2259; a bottomless urban canyon. (The Fifth Element, 1997)

As a result of the planetary exportation of vast amounts of Earth's water reserve in order to serve distant planets following the colonization of the Solar System, the level of the oceanic water-table has fallen dramatically.

As a result, following an economic logic similar to that of Blade Runner's retrofitting, real-estate developers excavated down, slicing the island into vertical canyons and instead of replacing structures constructed new additions to the existing ones not only on top but also below the old buildings. This changed the notion of a single street and ground plane for circulation, so hovering craft were envisioned to roam into stratified layers throughout the verticality. With the street layer stripped back, once-hidden infrastructures of subway shafts and city utilities are suddenly revealed giving the city a sometimes chaotic machine-like appearance [Fig. 5].

Figure 5.23 As the street level has dropped down several hundred meters, all the services that were once buried are now fully exposed (sewers, metro lines, etc), and the old street level has become just a series of bridges for the use of pedestrians. (The Fifth Element)

In The Fifth Element (1997) Zorg's powerful capitalist status is also represented by architecture. The tower he inhabits [Fig. 6] represents a literal translation of being at the top of the hierarchy. The building is one of the tallest in the city but not the most prominent. In fact, the New York of 2259 seems to lack such a central vertical element.

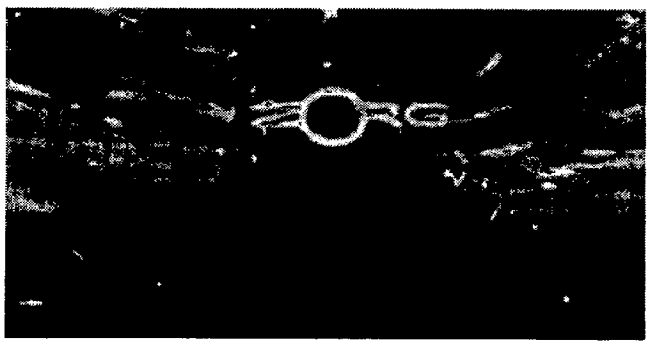


Figure 5.24 Zorg's tower reaches into the New York sky. (The Fifth Element,1997)

In the year 2259, the viewer is told, the world has a population of over 200 billion and New York City has become the capital of the world. The city has, like in the past, been forced to grow

Figure 5.25 Due to the vast depth of the city, public transport trains travel up and down the vertical walls of the buildings. (The Fifth Element, 1997)

taller, as a result, the metro transportation system is forced to be integrated vertically into the building [Fig. 20].

The Equilibrium (1997)

New York. (2259)

EQUILIBRIUM presents a vision of a world at peace, with a tremendous human cost. This is a world where war is a distant memory, yet where there is no music, no art, no poetry, where anyone who partakes in such banned activities is guilty of a "Sense Offense," a crime that carries a death sentence. It is a world where the age-old question "How do you feel?" can never be answered because all feelings have been shut out.

Libria is a stark, black-and-white (color, after all, evokes feelings) metropolis [Fig. 8], which is run by a mysterious dictator named the Father who wields power through a group of Ninja-like "clerics" who enforce his vision of peace through the chemical control of all emotion.

Figure 5.26 Libria: a fascist state where all citizens are rendered emotionless by the state. (Equilibrium, 2002)

The city of Libria [Fig. 24] in Equilibrium (2002) presents a controlled state taken to its extremes. The emotion suppressing state's agenda is clearly expressed through the city's architecture. Buildings, like the people that inhabit them are faceless and devoid of any feeling. The fascist's states media manipulative machine is inbuilt into the infrastructure of the city: giant billboards overtake whole build facades, and loud speakers that air a constant stream of propaganda are located at every corner.

Visual effects supervisor Tim McGovern worked alongside Kurt Wimmer and Wolf Kroeger to formulate the look of the walled Librian metropolis.

McGovern, who won an Oscar for "Total Recall," started with a theme of grandiosity. He explains: "The whole idea of fascist architecture is to make the individual feel small and insignificant so the government seems more powerful and I continued that design ethic in the visual effects. For example, Libria is surrounded by a seventy-five feet high wall [Fig. 25], the walls just keep going on and on and use vertical and horizontal lines in a Mondrian-type way. "

Figure 5.27 Libria: Walls of the city. (Equilibrium, 2002)

5.3 ARCHITECTURAL REPRESENTATION IN SCIENCE FICTION

- City bundled with skyscrapers.
- Energy consciousness.
- Self-sustainability.
- Advanced communication systems.
- City enclosed in a single building.
- Circulation networks in all the dimensions.

Every problem has in it the seeds of its own solution

- Norman Vincent Peale

CHAPTER – 6

FINDINGS

6.1 ISSUES TO BE TAKEN CARE OF IN FUTURE

The dystopian society projected in various science fictional works reinforces the vision of 'not perfect' future. Various visionaries while analyzing requirements, society, and behavior of future society, have identified the shortcomings and problems that future hold in for us.

The issued identified are listed below and some of them will be discussed in detail.

1. **LAND SCARCITY.**
2. **SUSTAINABILITY.**
3. **DEPLETING ENERGY.**
4. **SAFETY & SECURITY.**
5. **ENVIRONMENT DEGRADATION.**
6. **DISASTER MITIGATION.**
7. **TRANSPORTATION SYSTEMS.**
8. **LOW BUILDING MAINTENANCE.**

6.2 TACKLING WITH ISSUES: EXAMPLES FROM SCIENCE FICTION

ISSUE 1- LAND SCARCITY

The sphere of urban influence is constantly expanding; urban population is growing much faster than the world population. At the present time the trend is definitely towards **"megapolis"**. The steady encroachment of urban areas on farm lands will apparently have to give way to greater urban compactness by the construction of high-rise buildings and the use of underground space.

Figure 6.1 Highly compact dwelling unit, the fifth element, 1997.

SOLUTION 1: *Building high & compact*

The most efficient & prevalent solution for the problem of scarce urban land lies in building high and compact.

Almost in every science-fiction film very tall sky-scrapers slicing the skyline of the city is shown.

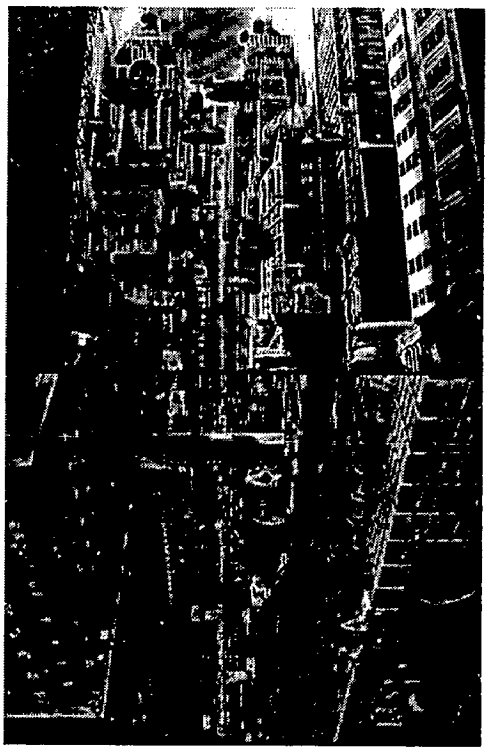


Figure 6.2 High rise skyscrapers, the fifth element, 1997.

Example: *Nanotech Buildings*

Enormous buildings built with nanotech fibers.

From - ***Idoru***, by **William Gibson.**

Published by Putnam in 1996

William Gibson understood the true potential of nanotechnology in buildings. He foresaw the resulting mile high skyscrapers, if Nanotechnology is fused in building construction.

SOLUTION 2: ***Encroaching Air, Water & Sub ground***

Example: Floating Island

Large artificial islands floating on Earth's seas.

From ***Saturn's Race***, by **Larry Niven.** Published by Tor in 2000

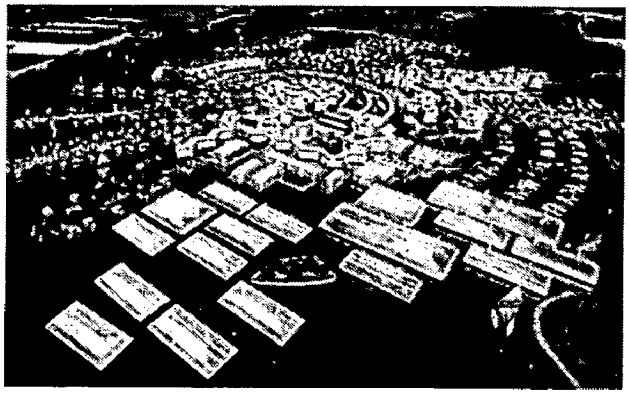


Figure 6.3 Floating Community, Ar. Koen Olinthus

The problem taken care of besides land scarcity is harsh weather. One can simply tow the island to a new location if the climate is not conducive. With every change of gear one experiences a new milieu.

Example: Underwater Living

Popular science-fiction film series of star wars shows the architecture of Otoh Gunga as an underwater city. The underwater city of the Gungans is all spheres and roundness. This organically grown city appears as a glittering cluster of jewel-like bubbles connected together in the dark waters.

The architecture of Otoh Gunga is sweeping in shape, lacking the rectilinear symmetry commonly found in technological human designs. Because of their strong belief in symbiotic coexistence with nature, the Gungans actually grow the building material of their cities.

Figure 6.4 The self grown architecture of the Gungans. (Star Wars: Episode I - The Phantom Menace, 1999)

SOLUTION 3: *Mobile Cities/Houses*

Example: *Walking City*

"what happens if the whole urban environment can be programmed and structured for change?" P. Cook

"Walking City" portrayed a giant city with insect-like legs that would move to wherever its residents wished. The first global city that was not subject to the logic of location.

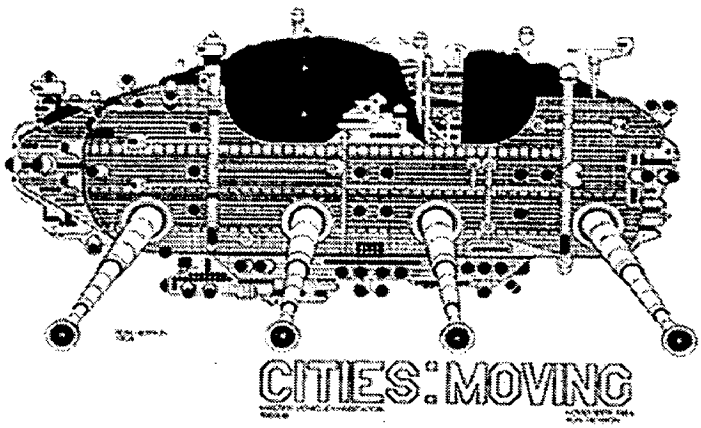


Figure 6.5 - Walking City, Ron Herron, Archigram

ISSUE 2 – DEPLETING ENERGY

There is a lot of hue & cry on the energy crisis that we are going to face in the future. More and more agencies have come up and directed their attention towards this issue of energy crisis, and are addressing new materials and technologies that will accentuate the task of energy conservation and render society self sustainable.

Various materials and technology available are:

- High tech buildings responsive to verbal commands, face & mood recognition.
- LED's, OLED's, Nanotechnology replacing conventional lighting systems.
- Optical fibers system.
- Light wt. & low energy materials.

SOLUTION

A lot of gadgets and tools are introduced in human life to take of load from their shoulders (making them lazy and stagnate). Robots are one example of such inventions.

Similarly a lot of gadgets are introduced in the society that despite of making human lazy enhances the necessary task of energy conservation.

For making our society a net zero energy development we would have to rely more and more on natural energy sources(sun, water, and wind) or the gadgets powered by these (photo voltaic, wind mill, solar heaters, etc.)

Examples: *A Smart Home with Cyber Crumbs*

From – ***The illustrated man***, by **Ray Bradbury**

Short story collection in 1951

The typical vision of the "automated house" of the 21st century is that, for us, control is what we really want. Products like HAL (***Home Automated Living***) are a set of control devices that allow the user to wirelessly and remotely control the various devices in the home. The vision of technology that Bradbury saw is that of a technology that replaces the human touch; the technology provides care for the people.

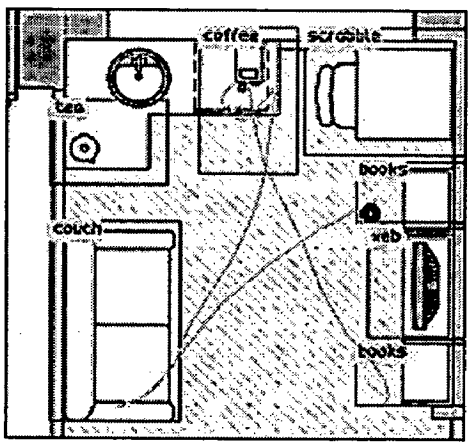


Figure 6.6 Smart homes offer a helping hand

Researchers today are also working on a smart home that takes care of us. At Accenture, they are working on the problems that will come with an aging population; by 2050 about 33% of the people in

developed countries will be 60 or older. Ideally, the home environment itself would be able to both support occupants when they are in trouble, diagnose their medical problems and help them maintain a positive outlook.

ISSUE 3 - SUSTAINABILITY

- Self sufficient in energy production.
- Integrating recyclable energy producing conventional tech. with modern construction systems.
- Harvesting wind, sun & rain water.
- Self sufficient in waste management.
- Resource conservation in all its forms
- A preference for local materials, skills with acknowledgment of local building traditions where appropriate.

Examples: MACHINE CITY

A city that is a self-maintaining whole entity

From - ***Twilight***, by **John W. Campbell**.

Published by Astounding Science Fiction in 1934

ISSUE 4 - TRANSPORTATION SYSTEMS

With the population explosion and factors of migration and brain drain; the urban population is growing at a much faster rate than world's population. This phenomenon has advocated complete change in the urban environment, with the cities now transforming in jungles of steel and glass towers.

The transportation network of the cities have to be defined and designed to enhance smooth movement of traffic and the complement busy lives (less time to travel). Also, the transportation networks have also to complement the height of the skyscrapers.

SOLUTION:

- Flying transport facilities.
- Circulation network in all the three dimensions.

Examples:

Transportation networks as shown in science-fiction films

1. Blade Runner, 1982

Flying cars are shown as the means of transportation in the future in the science-fiction classic "Blade Runner".

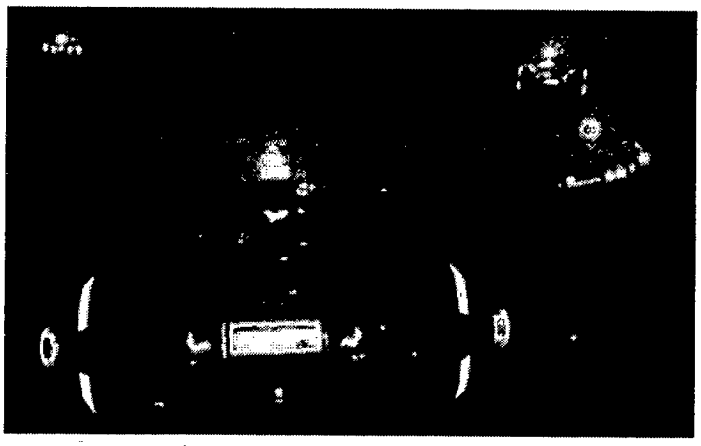


Figure 6.7 General View of the Traffic, Blade Runner, 1982

2. Minority Report, 1982

Transportation network seamlessly built on the facades of buildings is illustrated in the science-fiction film "Minority Report".

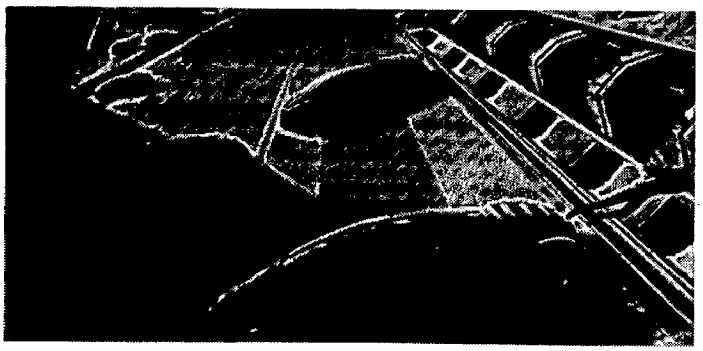


Figure 6.8 General View of the Traffic, Minority Report, 2002

Bubble

An undersea elevator

From ***Saturn's Race***, by **Larry Niven.**

Published by Tor in 2000

Air-Ship (VTOL Airship)

A flying machine capable of vertical take-off and landing

From ***The Angel of the Revolution***, by **George Griffith.**

Published by Pearson's Weekly in 1893

5. LOW / '0' MAINTENANCE BUILDING MATERIALS

- New building materials: alloys
- Strong & Durable

Examples: SMART MATERIAL

A wall covering that maintained itself, eating any graffiti placed on it.

From - ***All Tomorrow's Parties***, by **William Gibson.**

Published by Putnam in 1999

SEMISENTIENT PLASTIC

A durable coating that protects and preserves objects

From ***Ring***, by **Stephen Baxter,**

Published by HarperCollins in 1994

ADVANCED BUILDING MATERIALS

Nanomaterials

- Corrosion protective roofing and cladding using nanometer scale corrosion inhibitor coatings.

- High performance insulation materials based on nanoporous aerogel materials.
- Paint coatings with enhanced UV protection, and durability using transparent UV adsorbing nanoparticles, nanodyes, and nanoadditives.

Nanotechnology in glass

Glass with properties such as self cleaning coatings. Transparent-opaque switchable glass, UV blocking glass, heat management glass coatings.

Nanogels

Polycarbonate - Nanogel filled day lighting panels

Membranes

Tensile membranes

Teflon coated polyester membranes

Composite membranes with Fluotop PVDF (polyvinylidene fluoride) surface treatments have been used in major textile projects all over the world.

6.3 SOLUTIONS FOR ISSUES

	SOLUTIONS			
ISSUES				
	FILM MAKERS	**WRITERS**	**ARCHITECTS**	**REMARKS**
Land scarcity	Building high & compact, Encroaching Air, Water & Sub ground	Building high, Mobile Cities	Building high & compact, Mobile Cities/Houses	
Depleting energy	----	Automated house, Energy curtains.	Thermal concentrators. Energy from oceans	
Sustainability	----	Machine city "a city that is self sustaining the whole entity"	Cogeneration, Energy from space, Hydrogen energy	
Transportation system	Flying Transport, Transportation in all dimensions	Sub-Atlantic Tube, Bubble(underse a elevator)	----	
Low building maintenance	Plastics, Membrane(PVC coated polyster)	Self healing polymers, Smart material, Semisentient Plastic	Nano materials, Nano gels, Membranes.	

6.4 CONCLUDING REMARKS

The hypothesis synthesizes the fact that the world of science fiction has tremendous potential, and hence it should be a popular source of inspiration for the architects. Science fiction provides the architects with the ideas that challenge the accepted norms and advocates a bunch of ingenious solutions coming up.

Therefore it is well laid that one cannot shun the vision of prophets and thinkers because their vision has turn into sight of present generation.

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