



I would be remiss not to give a brief introduction to this class and myself.

Please forgive the start of the first lecture. Since I am new to the program, by design, I crafted first impressions for effect - diving right in to FLW words.

Today's handout has a brief overview of the class - Architecture in the Modern Era. Consisting of five lectures, the outlines for the first two lectures, last week's FLW and today's on Le Corbusier, are also included in the handout.

The third lecture next week will cover Frederick Kiesler, however, I am considering having a friend of mine, who some of you may know Flavio Chamis, join me in a discussion on the cross pollination of architecture and music in the modern era.

The fourth lecture will cover architectural education in the modern era, through the lens of my own graduate work studying visual perception and gestalt psychology.



Then the final lecture will discuss the practice of architecture in the modern era, again through the lens of my own practice, over two decades in residential design.

Finally, I welcome any and all feedback, as these lectures are for your benefit.

One of the positives of an education in architecture is the development of a thick skin from the assault traditionally leveled on students by their professors in studio reviews. So, I can assure you, there is nothing you can say that will offend me.

Please be as direct and blunt as you like, as that will facilitate the best chance for me to respond to any concerns or suggestions you may have for improvements.

In that spirit, after last week's lecture there were a few requests to limit the amount of text read from citations of historical lectures by the architects under discussion.

In response, today I will be taking a different approach that I think you will enjoy. Le Corbusier was well known for delivering his lectures by illustrating his architectural concepts on a blackboard with colored chalk, drawing as he spoke.

So that you may experience what a Corbusier lecture would be like, ideas unfolding before you, I will be re-creating his original sketches as he presented them in a series of lectures delivered in 1929, considered by him to be his final word on "the architectural revolution fomented by modern techniques".

However, if you will pardon one last reading, in Corbu's own words that I feel captures his spirit and the essence of his lifelong treatise on architecture:



"From a plane, I saw sights that one may call cosmic. What an invitation to meditation, what a reminder of the fundamental truths of our earth! The plane of the wing is parallel to that of the water, the edge of the wing touches the horizon. The overall feeling is of smoothness. The flight is uniform, continuous, undisturbed - all the ethic of architecture.

The course of rivers, in these endless flat plains, demonstrates peacefully the inevitable consequences of the laws of physics. Following the outlines of a meander from above, I understand the difficulties met in human affairs, the dead ends in which they get stuck and the apparently miraculous solutions that suddenly resolve apparently inextricable situations. The distance is enough for the whole day. To observe the extreme speed of the sun is to realize the speed, the transience of our lives and the irreparable loss of time.

At 500 to 1,000 meters altitude and at 180 to 200 kilometers an hour, the view from a plane is not rushed but slow, unbroken, the most precise one can wish. Everything takes on the precision of a tracing; along with the plane, it is only the steamer on sea or the feet of the pedestrian on the road that can give what may be called sight at human scale: one sees, the eye transmits calmly. I exist in life only if I can see."

Corbu captures the **influence modern technology has to transform perspective**
A perspective as a poet more than engineer, with vision to see the future.

Had a heightened sensitivity to color, details created intoxication of visual beauty.
Led to contempt for people who would look without seeing.

Like FLW, architecture was not decoration or styles, it was a conceptualization of space and visual form in relationship to the human condition.

Metaphor he would tell of two people talking over coffee in a small restaurant, the table still covered with glasses, plates, bottle of oil, salt shaker, napkins, ... the **inevitable order that relates these objects to each other**, all have been used, grasped by the hand, the **distances that separate them are the measure of life**. An organized mathematical composition, isn't a false point, hiatus, deceit. A still life, in a 'close-up', a testimonial to pure harmony. Find these inevitable arrangements in the houses of men.

But, in these houses, many poisoned by false harmonies, dodges, fakes. However, it is **the concept of life** that we must change, the **concept of happiness** that must be made clear, that is the reform needed, the rest is only a consequence.



Born in La Chaux-de-Fonds, a small Swiss town known for their watchmaking. Ancestors were Albigenses Cathars that fled S.France to mountains of Swiss Jura. Corbu was proud to have descended from French rebels.

His parents Calvinists, family motto: “**Whatever you do, see that you do it.**”
Never procrastinate, even a minute. Filled time practicing music, drawing, reading.

In kindergarten, taught Friedrich Froebel's pattern/block methods as FLW. Father would take him on long walks into the Alps, teaching of trees, clouds, birds, Taught his father's trade enameling watches, at 15 won an international prize for this pocket watch design, crafted in silver, steel, copper, gold, ...

Interlocking Froebel pattern concepts visible in the design.

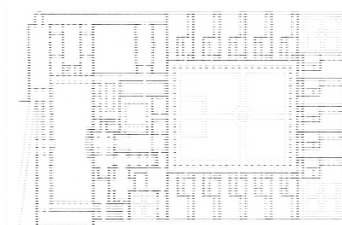
At age 12, Corbu went to l'Ecole d'Art, apprenticing under Charles L'Eplattenier. At age 17, designed and built first building, Villa Fallet, for l'Ecole d'Art.



After reading John Ruskin's Seven Lamps of Architecture and with money made from Villa Fallet, left home to see the world's architectural monuments first hand.

Setting out on foot, he arrived first in Florence and came upon a 15th century **Carthusian monastery, Charterhouse of the Valley of Ema**, that would influence his work for the rest of his career.

Gracefully combined **community living and sanctity of individual existence**.



Individual monk's cells had a view out over the plain and circled a common central garden, with back doors opening into a covered arcade.



After visiting the monastery, Corbu believed, **“All human housing should provide the solitude and tranquility enjoyed by the monks.”**

Himself a descendant of the French Cathars, who practiced an **austere and humble way of life**, Corbu adopted the **lifestyle of the monks, purging everything** that wasn't necessary, believing in a **leaner, purer, tougher existence** would enlighten.



His travels took him to Pisa, where he was more intrigued by the variations occurring on the buildings by the **changes in sunlight and states of the sky**, than the buildings themselves.

In Pompeii, the House of the Tragic Poet, found the subtleties of a consummate art. The axis is not a rigid thing of theory, it is clearly ordered, but the feeling is richer by clever distortions of the axis: the well is at the side of the basin, far fountain in the corner of the garden. **Objects placed in the center, often spoil the rooms.**

Greater importance, viewed from the entry vestibule, front **atrium** has a soft glow by sunlight passing through a small opening in the roof, delineating the well. The **tablium** a contracting lens, dark middle ground, columns silhouette shadows. The **peristyle garden** at the end of the vista is fully illuminated, large open roof washing the interior garden with sunlight, drawing the eye back in.

Inside, out of the clatter of the swarming street, you have entered the house of a Roman, magistral grandeur, order, a splendid amplitude. The function of the rooms does not matter, **you are conscious of architecture**, mind you a very small house.

The lights of the **sun acts on the human with an efficiency** profoundly rooted in the species. Clouds hides the sky, how sad you are. Wind drives the cloud away, how happy you are. Precise intensity of light on forms, acting on our sensitive being, provoking physical, physiological sensations, **determines our feelings**.

The point where you open a window, where you enter a room, feels differently. Calm of a well-lit bedroom or anguish of a room full of dark corners.

Arrived in Vienna to seek work with Joseph Hoffmann or Otto Wagner, couldn't interview. As money ran out, **learned how cold and harsh the urban city** can treat disadvantaged. **A solitary combat against this mocking inert mass.**

Returned to Paris, inspired by Matisse's watercolors, Lalique's glasswork, Rodin's sculpture, and Hector Guimard's Art Nouveau architecture. Auguste and Gustave Perret technical sophistication in reinforced concrete. Auguste saw **freshness and spontaneity in his travel sketches**, hired him as his "right hand man". **Mathematics was beautiful, logical, perfect.**

In 1909, Corbu left for Berlin, to seek employment with Peter Behrens, who was developing a streamlined functionalism, the most progressive throughout Europe. Despite other talent in his office at the time, Walter Gropius, Mies van der Rohe, Marcel Breuer, Corbu found his work all façade and believed an architect must above all be **a thinker, his art consisting of abstract relationships only described or depicted symbolically**. This manipulator of rhythms must possess a fully developed brain of extreme flexibility.



In 1911, he traveled to **Mount Athos a monastery in Macedonia**. On the Mediterranean, he found meaning in **the flatness of the horizon, where sea and sky meet**. Particularly at noon, when it imposes uniformity on everything about it, provides a measure of the most humanly possible **perception of the absolute**.

He yearned for a language limited to only a few words, **architecture built modestly and purposefully, both the salient honesty and celebration of life**. The noble task of the architect was to open the soul to such poetic realms.

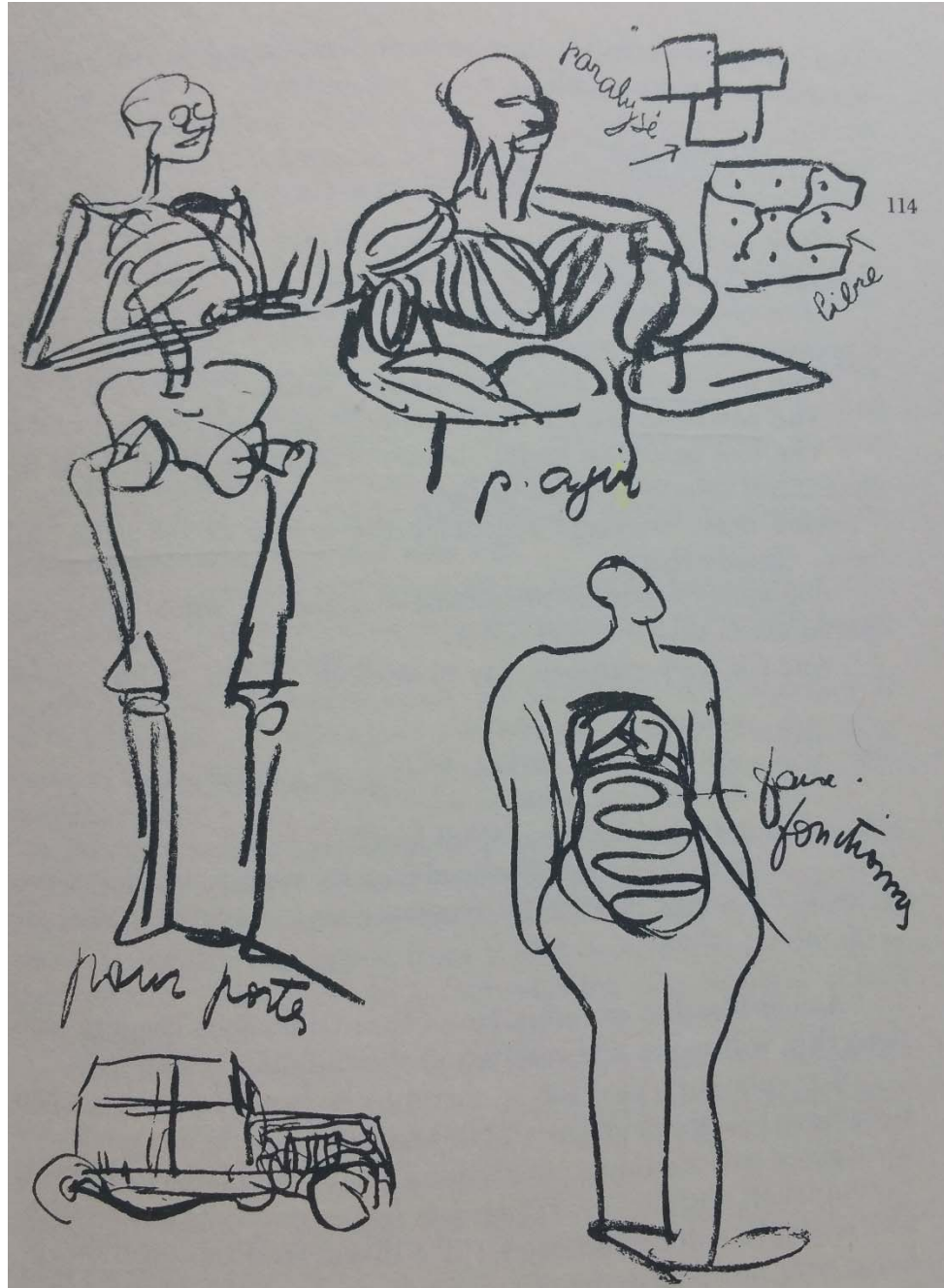
When he reached the **Parthenon**, just after sunset, the effects of moonlight and solitude, standing inside a place once reserved for gods, he looked back between the fluted columns to **a vast sea and mountains in the changing light at dusk, the universal vista**.

After returning to Paris, Corbu, painter Amedee Ozenfant and poet Paul Dermée, began publishing **L'Esprit Nouveau, a new spirit for a new way to life**, toward that **laughing, clear and beautiful sky**. Published under the new name **Le Corbusier (formerly Charles-Edouard Jeanneret-Gris) became an alter-ego, a shelter (house) in which to recoil**.

Towards a New Architecture, the most important treatise on design in the Modern Era: **"House a Machine to Live in"**. Corbu saw **beauty in the pure perfection of a "well oiled machine", a combination and arrangement of parts tending toward the same end**. Architects as Engineers, the creators of airplanes, steamships, automobiles, typewriters, to perform the services expected of a house.

Flexibility of the modern house, based the biology of the human body:

Skeleton for carrying,
Muscular filling in for action,
these viscera to feel and to operate



Automobile construction:

A (skeleton) frame, a body, a motor with its organs of feeding and evacuation.
Flexibility of electric cables, gasoline hoses, exhaust pipes go around organs.

Flexibility of house organs: heating, ventilation, daylighting, circulation,
going around the independent structure and interior plan of the modern house.

Architecture is circulation:

Masonry house foundation walls: thick, limited use, poor light, high cost.

First floor walls stacked atop same walls below, therefore same size rooms:

What are common factors in **arrangement & lighting** btwn. Dining & Bedroom?

Waste Inefficiency Paralysis

Partitions, not walls

Light all around

Air circulation

Ground intact, unbroken

FLW overhangs

Corbu pilotis

Hand-drawn sketches illustrating architectural concepts:

- Top Left:** A sketch of a building footprint with red walls and white interior spaces, labeled "I er".
- Top Right:** A sketch of a building footprint with red walls and white interior spaces, labeled "R de C".
- Middle Left:** A sketch of a building footprint with red walls and white interior spaces, labeled "Cave".
- Middle Right:** A sketch of a building footprint with red walls and white interior spaces, labeled "plan paralysé".
- Bottom Left:** A sketch of a building footprint with red walls and white interior spaces, labeled "insolubilité".
- Bottom Right:** A sketch of a building footprint with red walls and white interior spaces, labeled "économie humaine".

Modern house small pad footings, no basement (as with FLW)

Floors and roof reinforced concrete slabs raised off the ground atop pilotis.

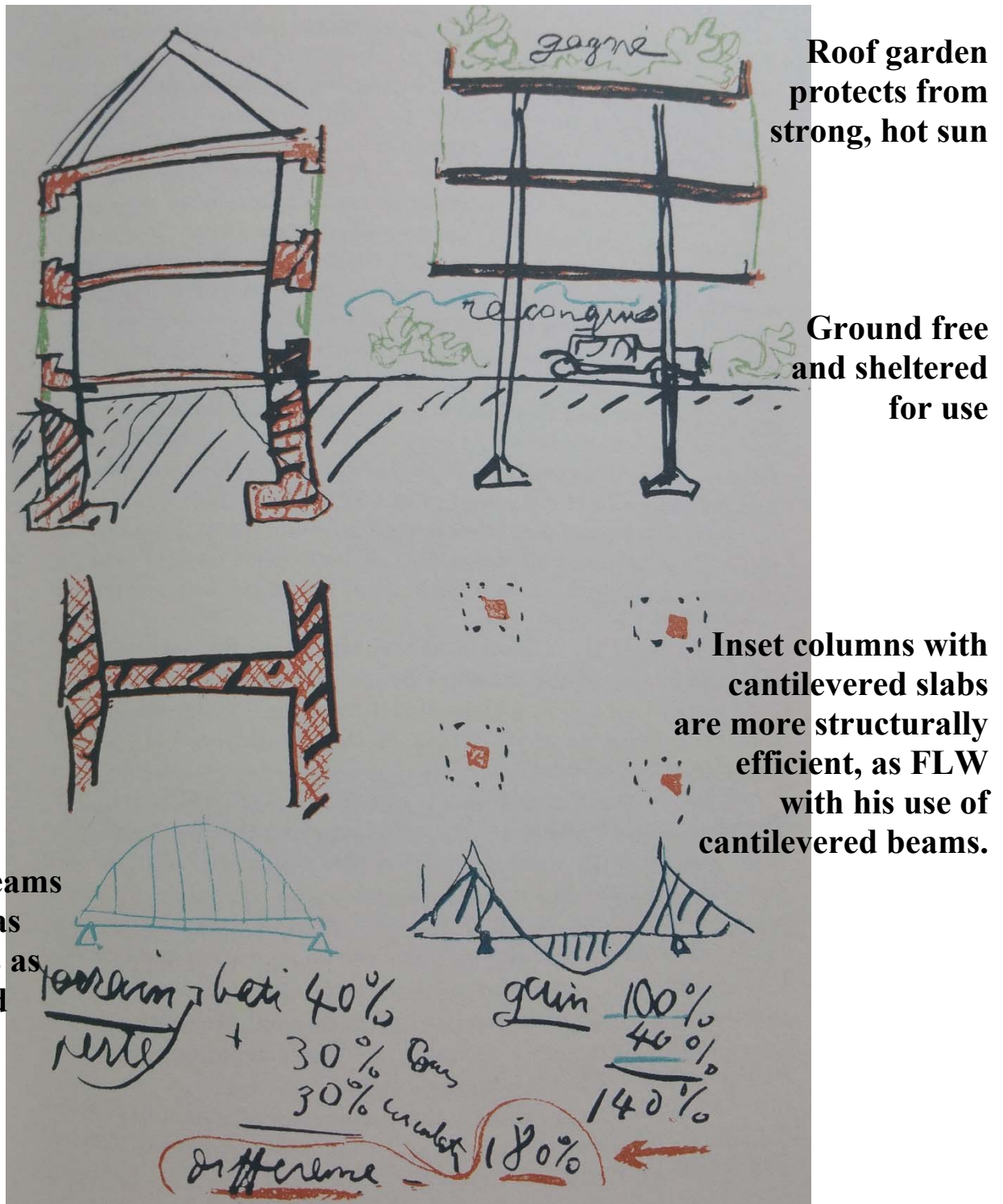
Interior walls non-load bearing, flexible shape & placement for function.

Architecture is lighted floors:

You do things in a house if there is light, if it is dark you are asleep.

Window openings in masonry house is a contradictory, making walls weaker.

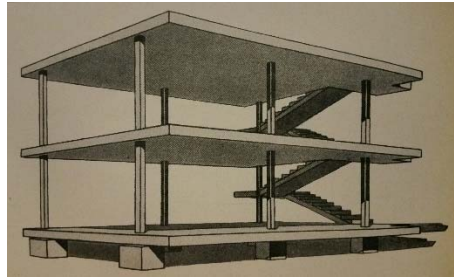
Opposition btwn. walls carrying floors and lighting floor surface.



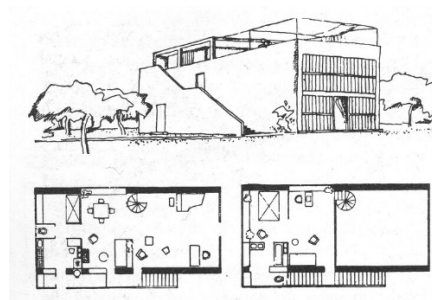
Reinforced concrete **floor slabs carry the walls**, the reverse of masonry houses.

Walls become “curtain walls” hung off of floor slabs, screens, window walls.

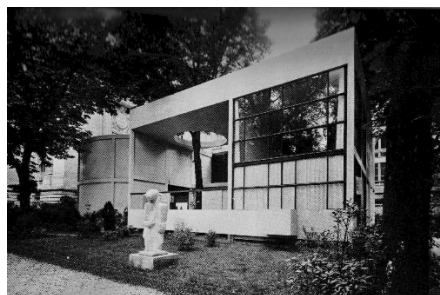
Horizontal “ribbon” windows allow in four times more light than vertical windows.



In 1914, the first World War broke out, Corbu developed the **Dom-ino system** (three concrete slabs stacked on concrete columns, joined by concrete stairs), a **standardized design for pre-fab, mass-produced housing** to address homeless. Once this skeleton was erected, the bombed-out inhabitant would **finish his house in accordance with his own ideas: flexibility and individuality**.



In 1920, Corbu and Saugnier (Ozenfant's alter-ego), developed the **Citrohan housing type**, (shoebox cell modeled after the Paris artist studio and the Ema monastery, two-story height vaulted living room flooded with sunlight from a full glass wall, kitchen in the back with bedroom and bath above, spiral staircase linking the two, flat roof top garden) named after the Citroën motorcar, a house like a car, a practical house like a machine or a tool. **Simple, clean, hygienic, logical dwelling**.



In 1925, Corbu and Pierre Jeanneret (cousin), exhibited **Pavillon l'Esprit Nouveau**, the built prototype for the Citrohan housing type. Calling for **large-scale manufacturing to take over the process of building**.



Paired with a model for a City of Three Million Inhabitants (central terminal for trains, subways, automobiles, airport, surrounded by 24 cruciform 60 story glass office buildings and apartment houses on the perimeter, then Citrohan units in garden cities on the outskirts), **an organizing structure on macro (city) and micro (housing) scale**. The materials of city planning were sky, space, trees, steel and concrete – the sky everywhere, that uplifting vista.



In 1926, the **Five Points of Architecture: Free plan, Free Façade, with continuous Ribbon Windows, Roof Garden, all raised atop Pilotis**.

In 1927, this was realized for the first time in two buildings built in the experimental **Weissenhof quarter, a development** by 17 architects (Peter Behrens, Walter Gropius, Mies van der Rohe, J.P. Oud, Bruno and Max Taut) in Stuttgart.



These two buildings synthesized all of Corbu's ideas on **the monastery cell (Free plan) and garden (Rooftop), the Mederterranean Sea and Swiss Alps vistas of the absolute (Ribbon Windows), the Pisa amd Pompeii coastal sunlight (Free Façade), and the Swiss alpine tree canopies raised atop trunks (Pilotis) providing for the freedom of movement and air.**





In 1928, these ideas were refined into the **Villa Savoye**. The ground level entry diameter determined by the exact turning radius of the 1927 Citroen car. The house, a perfect square, fully **raised atop pilotis, the Cubist 4th Dimension** reralized in architectural form: from **a single point of view and single glance, the width and depth of the house could be seen simultaneously.** All notions of “Front” or “Back” or “Side” **surpressed** by the pure, regularity of the plan.



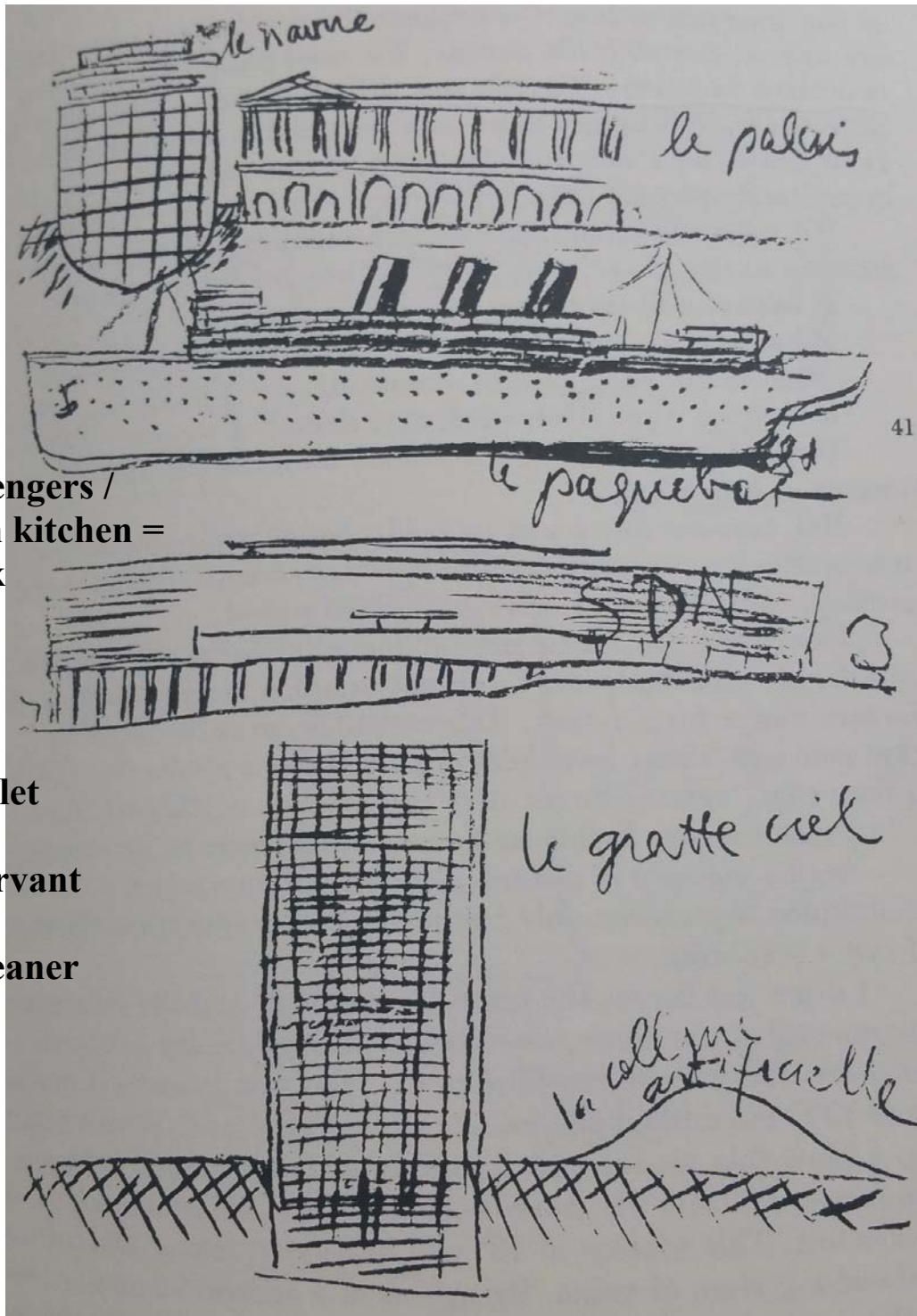
Air circulated everywhere, **light** circulated everywhere, the **inhabitant** circulated everywhere: architectural **liberties brought by modern materials and techniques.**



The hollowing out of outdoor space inside recalls the lessons learned as a child playing with Froebel blocks, with the clarity of 1902 pocket watch design. Where FLW **interlocked form and space in horizontal plan low to the ground,** Corbu was **interlocking form and space in vertical section reaching for the sky.**

Streets are Independent of Buildings:

**2,500 people onboard an ocean liner: a new dimension in housing, new scale.
Organizing modern domestic life: day of rest not in proportion to day of work.
Plans corresponding to Collective Functions: circulation, low cost, harmony.**



**2,000 passengers /
50 cooks in kitchen =
1/40 a cook**

**elevated
streets**

1/40 the valet

1/40 the servant

1/40 the cleaner

**House façade has been 10, 20, 30 meters long, belonging to Mr. X.
Collective house will be 1, 2, 5 kilometers long, with collective services.
New standardization, industrialization, efficiency for every household.**

Breathing is the Basis of Life:

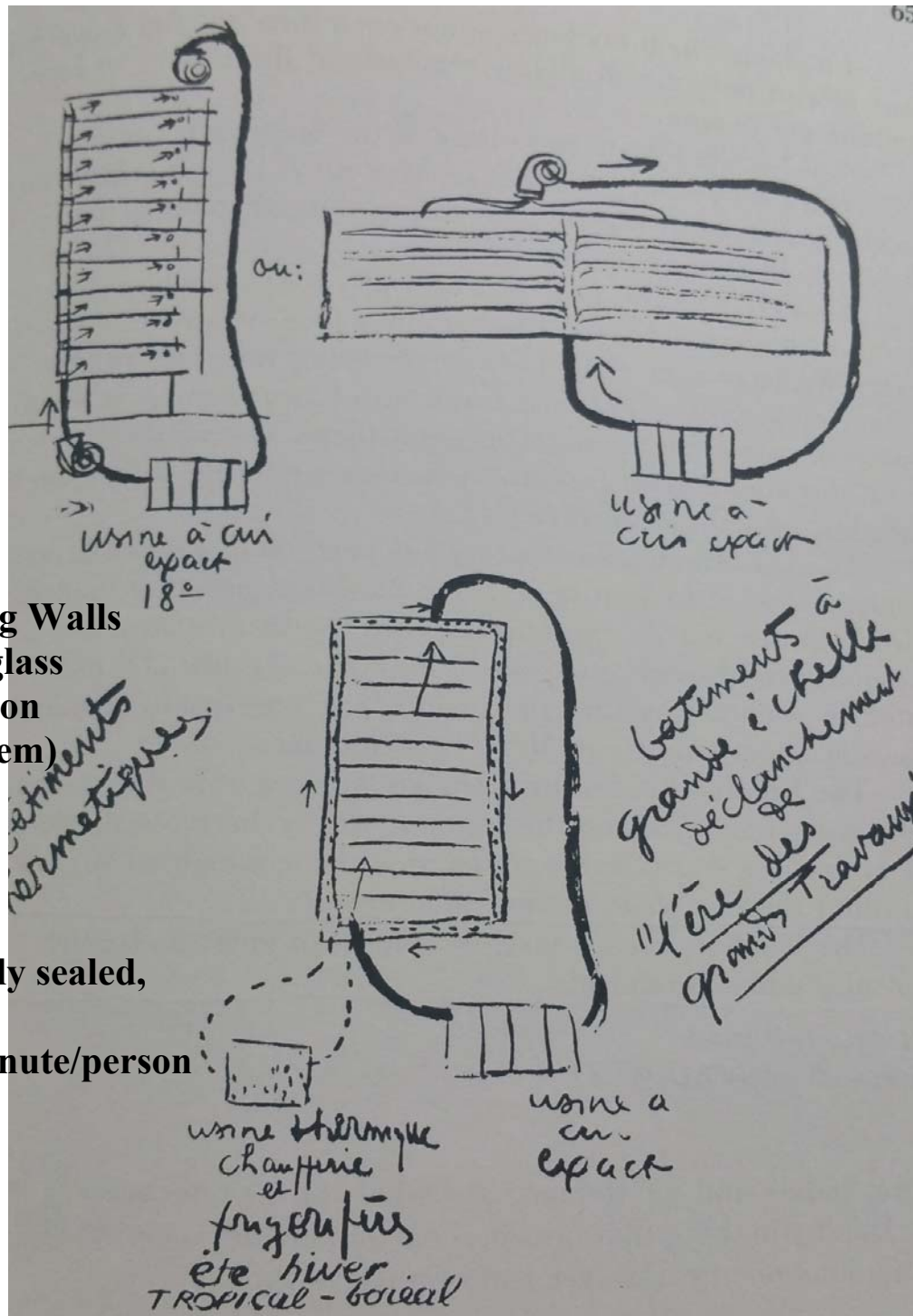
Pure air at constant temperature and regular degree of humidity.

Universal house for all climates: Factory for producing exact air.

Blown through carefully laidout conduits, arteries and viens, in and out.

Neutralizing Walls
(insulated glass
circulating on
second system)

Hermetically sealed,
circulates:
80 liters/minute/person

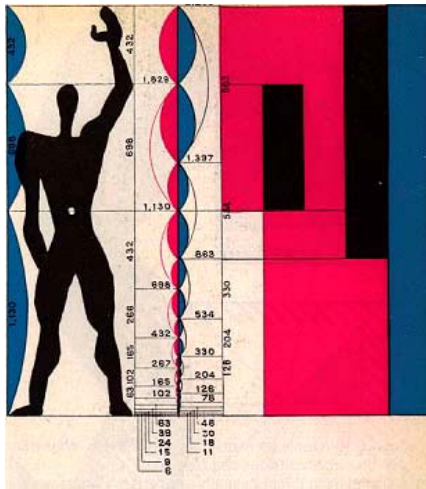


Factory: bath of potassium to lose carbon, an ozonifer to regenerate it,
Compressors to cool it, heated by the lungs of the inhabitants.

FLW: radiant heating in floor slab. Corbu: forced air HVAC



In 1952, the **Unite d'Habitation in Marseilles** realized the vision, layout out the logistics for the 1922 buildings in the City for Three Million Inhabitants.



At the scale of the collective house apartment block, Corbu's 1946 **Modular** concept was realized: **interlocking system of proportions**, a gradually **diminishing scale of proportionate dimensions**.

FLW's ceiling was set to 6'-4" (based on his 5'-8.5" height: human scale), Corbu's ceilings were 7'-6" (the reaching height of a human)

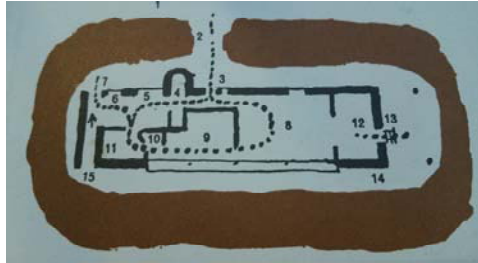
Something personal about a ceiling you can touch with your fingertips, The bond gained by tactile with the hand, a handshake, a hug.



In 1923, Corbu designed and built a house for his parents, **Une Petite Maison**.

Modern house (free / flexibility): to plan a dwelling in accordance with the logic of reasonable functions. The new elements (materials and methods) of modern architecture made it possible to adapt to a site whatever the circumstances.

Make a plan according to: **along Lake Lemman**, with a **magnificent view** and facing the **south sun**. This done, plan in hand, looked for a suitable site.



In 1911, Corbu was working in the office of Peter Behrens, the day FLW's **Wasmuth portfolio** arrived. The studio shut down for the day, to digest a new modernism the likes had never been seen before. A collection of FLW's house designs to date, the crowning example of his Prairie Style was the **Robie House**.

Faced with a narrow lot, view along the expanding side, there is little doubt Corbu drew much inspiration from Wright's masterpiece.

The builder adopts a unit of measure, his pace, his foot, his hand, his finger. He has regulated his work, he has brought in order, on his own scale, to his own proportion, comfortable to him, **to his measure**.

In harmony with him, he discovers rhythms apparent to the eye, **regulating lines**.



Banal metallic post and low wall, these modest objects close at hand, human scale, cross at a right angle, coordinates of the water and mountains.

Mediating elements that take the viewer safely outward into the immensity of this dialectic space of the imagination, **the sublime**.



In the realm of the poetics of space, true architecture is not a question of style or decoration. Rather it issues from the primordial depths of the human psyche, evoked by distinctions of dark cellar and roof top.



**You employ stone, wood, concrete, build houses, that is construction.
But suddenly you touch my heart, you do me good, I am happy and I say “This is beautiful”.**

**Walls rise toward heaven in such a way that I am moved,
I perceive your intentions, the stones you have erected tell me so.**

**Behold something which expresses a thought without word or sound,
but solely by means of shapes.**

**Inert materials establish certain relationships which have aroused my emotions
The language of Architecture.**