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Vers une architecture and Villa Savoye

A comparison of treatise and building

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Fig 1.01 - Cover of *Vers une architecture*

Fig 1.02 - Villa Savoye, south elevation



Fig 1.03 - Villa Savoye (from *Oeuvre Complete*)

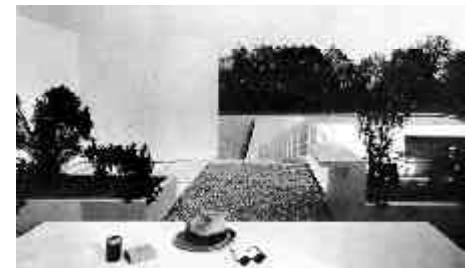


Fig 1.04 - Villa Savoye solarium

Introduction and Basic Theory

Introduction

This paper principally studies two works by Le Corbusier, a treatise entitled *Vers une architecture*, and a completed building, the Villa Savoye. Le Corbusier first published *Vers une architecture* in 1923. The English translation is (mistakenly) entitled *Towards A New Architecture*. For consistency, I will refer to the French title throughout. The Villa Savoye is a private single-family residence located in Poissy, France. Design started in 1928, and proceeded through five variations¹. Construction began in 1929 and was completed in 1931.

The intent of this study is twofold. Firstly, a comparison is made as to the effect and correlation of the treatise on the building, and conversely, the effect of the building on the treatise. By the former I mean how (and if) the architectural principles expressed by Le Corbusier are manifested in an actual project. Does the ideology take precedence over other concerns? Is there a compromising effect due to accommodating owner needs, project budgets, etc? Similarly, do the experiences of building affect the construction of the treatise?

This aspect of the study takes the principles expressed by Le Corbusier as a given. The second intent of this study examines the roots of the stated principles, and their applicability to the realm of architecture.

Basic Theory

The theory of Le Corbusier is multi-faceted and defies simple explanation. A fundamental aspect of his theory is that architecture relates to a fixed world-order. From *Vers une architecture*:

*Architecture is a thing of art, a phenomenon of the emotions, lying outside questions of construction and beyond them. The purpose of construction is to make things hold together; of architecture to move us. Architectural emotion exists when the work rings within us in tune with a universe whose laws we obey, recognize and respect. When certain harmonies have been attained, the work captures us. Architecture is a mater of "harmonies," it is a "pure creation of the spirit."*²

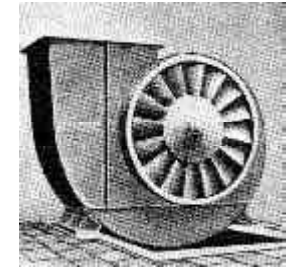


Fig 2.01 - Ventilating fan (from *Vers une architecture*)



Fig 2.02 - Propylea (from *Vers une architecture*)

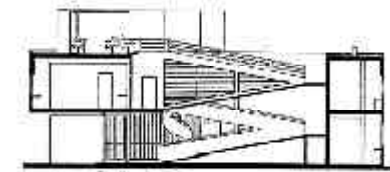


Fig 2.03- Villa Savoye cross section



Fig 2.04 - Villa Savoye

This attitude has its architectural origins in Greece, Vitruvius, and the Renaissance. Rudolph Wittkower made the following observation about Alberti:

*Alberti is explicit about the character of the ideal church . . . its beauty should surpass imagination. It is this staggering beauty which awakens sublime sensations and arouses piety in the people. It has a purifying effect and produces the state of innocence which is pleasing to God. What is this staggering beauty that has so powerful an effect? According to Alberti's well-known mathematical definition, based on Vitruvius, beauty consists in a rational integration of the proportions of all the parts of a building in such a way that every part has its absolutely fixed size and shape and nothing could be added or taken away without destroying the harmony of the whole.*³

Le Corbusier appropriates much of this philosophy, but without an overt reference to God. It would seem that for Le Corbusier the laws of the universe are *a priori*, and exists within itself as an absolute, without relying on reference to other elements. In discussing beauty, Le Corbusier states that we feel harmonies because "they arouse, deep within us and beyond our senses, a resonance . . . which begins to vibrate. An indefinable trace of the Absolute which lies in the depths of our being."⁴

Peter Carl makes the observation that for Le Corbusier, mathematics is "the key to great systems. These doors (opening on to the world of mathematics) are the doors of miracles. Having gone through one, man is no longer the operative force, but rather it is his contact with the universe."⁵

Another aspect of Le Corbusier's philosophy was his concern for a new architecture relative to current times. Each epoch should create its own works of architecture. He has an inherent belief that forward progress is good. "If a man does not move forward he becomes bankrupt."⁶ *Vers une architecture* contains many images of airplanes, motorcars, and ocean liners – examples of modern technology and progress. Other strands of modernism current at that time felt that a clean break from the past was necessary, i.e., virtually starting with a blank slate. Le Corbusier is different in this regard as he maintains links with the past. The most obvious, as noted above, is a belief in an absolute. In addition, Le Corbusier draws selectively from the past of Western architecture. He uses examples of Greece, Rome, and other periods to amplify his various arguments.

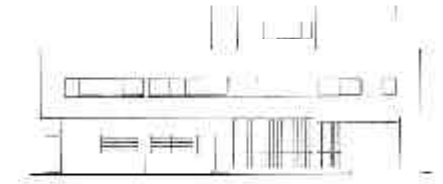


Fig 2.05 - Villa Savoye west elevation



Fig 2.06 - Vitruvian figure

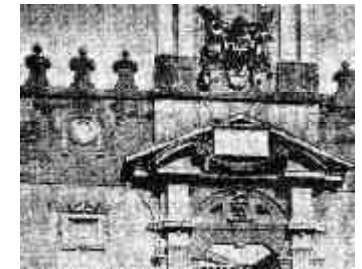


Fig 2.07 - Porta Pia (from *Vers une architecture*)

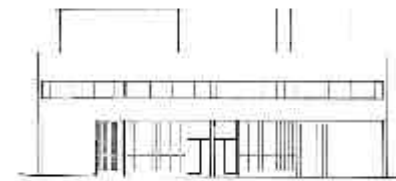


Fig 2.08 - Villa Savoye south elevation

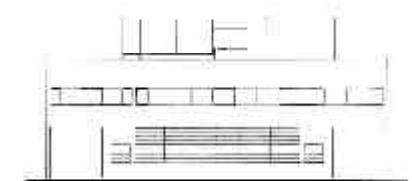


Fig 2.09 - Villa Savoye north elevation

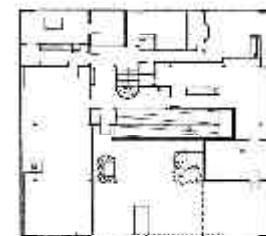


Fig 2.10 - Villa Savoye first floor plan



Fig 2.11 - Ocean liner (from *Vers une architecture*)

Mass

Having established that his theory is based on mathematically expressed harmonies, Le Corbusier states that these harmonies are perceived through the eyes. He discusses these perceptions as three reminders to architects; mass, regulating line, and plan. With regard to mass, Le Corbusier has famously argued that:

Architecture is the masterly, correct and magnificent play of masses brought together in light. Our eyes are made to see forms in light; light and shade reveal these forms; cubes, cones, spheres, cylinders or pyramids are the great primary forms which light reveals to advantage; the image of these is distinct and tangible within us and without ambiguity. It is for that reason that these are beautiful forms, the most beautiful forms.⁷

Villa Savoye uses a multiple of primary forms as part of its design. Fig. 3.07 shows how a series of simple forms comprise the volumes of the design. Figs. 3.03 and 3.04 show detailed elements, where the composition of cylinder and rectangular masses are clear. Compare these with the photos of primary forms shown in *Vers une architecture* – grain elevators, pyramids, etc.

Colin Rowe makes a perceptive observation about *Vers une architecture*:

An absolute value is consistently imputed to mathematics, which is 'sure and certain,' and order is established as an intellectual concept affirmative of universal and comforting truths; but, perhaps, even with the word 'comforting' the senses are involved, and it becomes apparent that cubes, spheres, cylinders, cones, and their products are demanded as objects governed by and intensifying sensuous appreciation. At one moment, architecture is "the art above all others which achieves a state of Platonic grandeur"; but, at the next, it becomes clear that this state, far from being changeless and eternal, is an excitement subsidiary to the personal perception of the "masterly, correct and magnificent play of masses brought together in light." So the reader can never be clear as to what conception of rightness the word 'correct' refers. Is it an idea, apart from, but infusing the object, which is 'correct' (the theory of the Renaissance); or is it a visual attribute of the object itself (the theory of 1900). A definition remains elusive.⁸



Fig 3.01 - Grain elevator. Primary cylinders - sculpted shade and shadow. (*Vers une architecture*)



Fig 3.02 - Pyramids (from *Vers une architecture*)



Fig 3.03 - Villa Savoye Cylindrical column, rectangular middle, cylindrical top

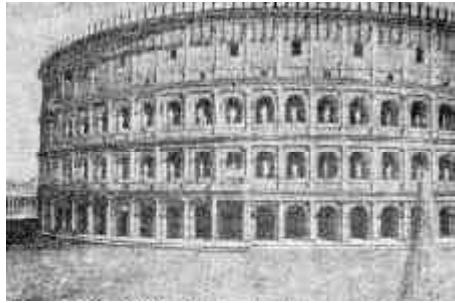


Fig 3.05 - Coliseum (from *Vers une architecture*)



Fig 3.06 - Grain elevator. Bold primary forms, sculpted by light. (From *Vers une architecture*)



Fig 3.04 - Villa Savoye Primary forms. White cylinders give shade and shadow.

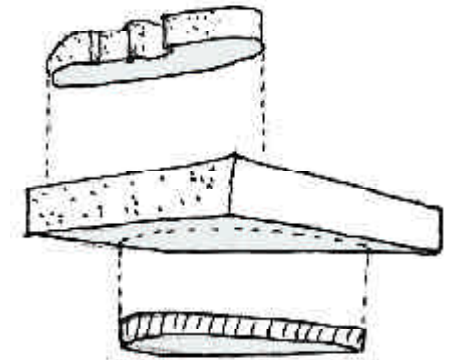


Fig 3.07 - Primary massing of Villa Savoye Base, middle and top in primary forms

Regulating Lines

The second reminder to architects in *Vers une architecture* was that of surface. In the words of Le Corbusier:

To leave a mass intact in the splendour of its form in light, but, on the other hand, to appropriate its surface for needs which are often utilitarian, is to force oneself to discover in this unavoidable dividing up of the surface the accusing and generating lines of the form.⁹

Included in *Vers une architecture* are a number of examples of classical buildings with regulating lines. Figs. 4.08 and 4.03 show Notre Dame and Michaelangelo's Capitoll. The idea of regulating lines was not original to Le Corbusier. The principle of an ordering geometry had been in use since before antiquity. Renaissance architects onwards used ratios as a means of constructing an ordered geometry in a building, most visibly in elevation, but also in plan and section.

Fig. 4.02 looks at the proportions of Palladio's canonical Villa Rotunda. A classical proportion of 1:2 is used in plan, and proportions of 3:4:5 appear in the elevation. In my eyes, this is a far more rigorous composition than the Villa Savoye. An interesting observation between these two buildings can be made in the differences in plan and elevation. The Villa Rotunda seems to apply the ordering geometry more starkly in plan than in elevation, whereas the Villa Savoye seems to apply the ordering geometry more in elevation than in plan.

Fig. 4.04 shows regulating lines applied to the south elevation of Villa Savoye. Vertical proportions of the main elements are loosely in proportion of 3:4:5. Other elements of the façade can be placed by diagonal regulating lines as shown in the diagram. However, a number of other elements of the façade can not be explained by regulating lines - - for example the roof level elements and the window mullions in the long strip window, have no apparent generation by regulating lines.

The writings of Le Corbusier, particularly the later *Modulor*, implies a fixed order against which a design can be constructed. It would appear to me however, that the application of these rules was selective by Le Corbusier. For example, the proportional system used in Villa Savoye is an ordering device towards a belief of absolute order - in other words, the proportioning system is a means

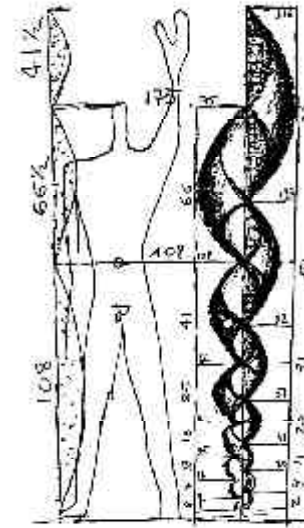


Fig 4.01 - LeCorbusier sketch of the Modulor

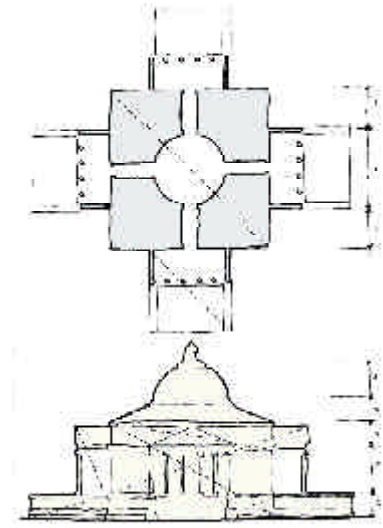


Fig 4.02 - Proportional analysis of Palladio's Villa Rotunda



Fig 4.03 - Regulating lines applied to Michaelangelo's Capitoll (from *Vers une architecture*)

towards an end, but not the end in itself. In *Vers une architecture* and later writings it is not clear to me what Le Corbusier means by the Absolute. This is reflected in turn in the buildings where the design methods are a search towards an glimpsed subconscious conception.

Regulating lines do not appear to be the sole means of providing order in the Villa Savoye, but one of the ordering 'tools' used in the composition, ie, structure, composition of masses, etc. Underlying all of these efforts is the assumption that striving towards and achieving order is the essence of architecture. For example, if ones view of architecture were phenomenological, then the use of regulating lines and other ordering systems would have little bearing, in themselves, on the architecture.

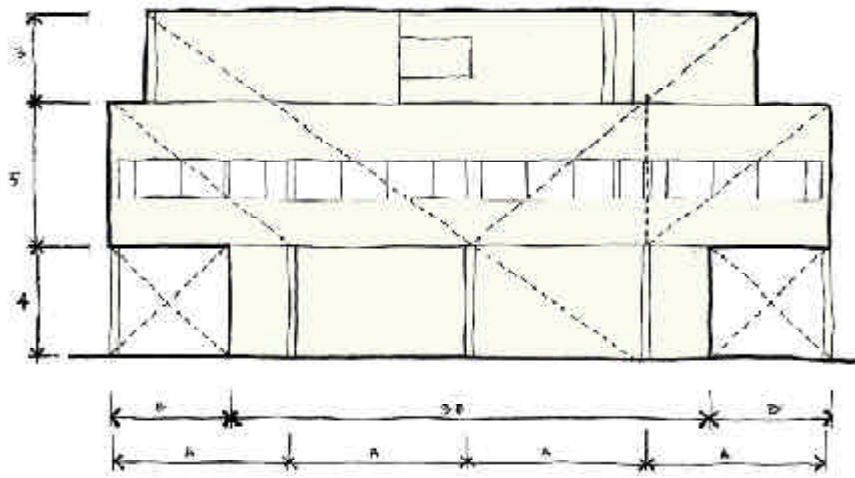


Fig 4.04 - Regulating lines applied over existing elevations of Villa Savoye

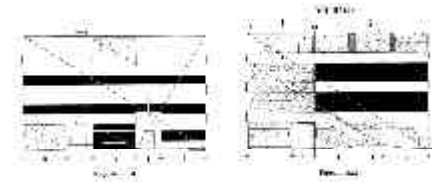


Fig 4.05 - Villa at Garches (from *Oeuvre Complete*)



Fig 4.07 - LeCorbusier's Villa Jeanneret (from *Vers une architecture*)

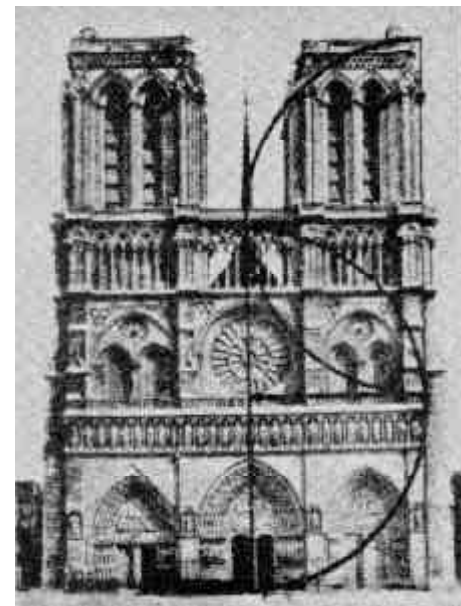


Fig 4.08 - Regulating lines on Notre Dame (from *Vers une architecture*)

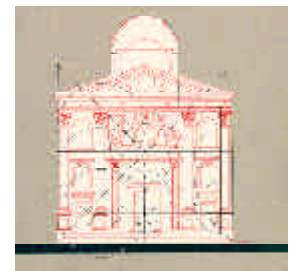
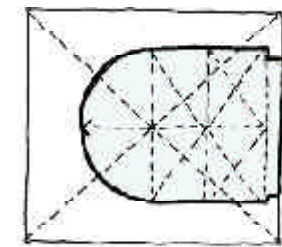
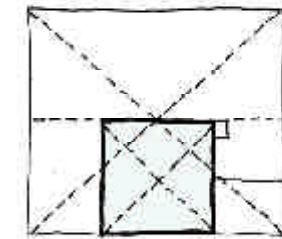


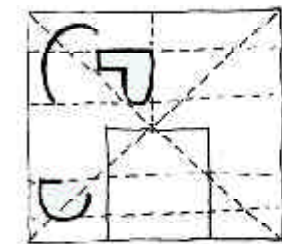
Fig 4.06 - Proportioning diagram of Alberti's S. Andrea church



Ground Level



First Level



Second Level

Fig 4.09 - Plan analysis of Villa Savoye showing proportions and regulgating lines

Equalisation

The last of the three reminders to architects in *Vers une architecture* was the plan.

*The Plan is the generator.
Without a plan, you have lack of order, and willfulness.
The Plan holds in itself the essence of sensation.*¹⁰

Underlying the idea of plan is the central importance of order. According to Le Corbusier "where order reigns, well-being begins."¹¹ This links to the idea about the importance of harmony, and its relation to the Absolute, i.e., the more order one has, the closer one is to the Absolute.

Peter Carl postulates that for Le Corbusier, written language, matter, mathematics, music and time are systems of signs that refer to a significant segment of reality. These signs are

*the 'fruit' of a 'marriage'. This marriage takes place between two 'orders', the human and the cosmic. . . Order, in the singular is the very key of life.*¹²

Methods of ordering can be seen throughout the Villa Savoye. The idea of a repetitive structural grid, as in the Domino project (Fig 5.03) uses a simple idea of structure as an ordering element. This ordering is overlaid with other ordering elements, whether they are regulating lines, composition of masses, or the sequence of views in the *architectural promenade*.

Le Corbusier used the category of plan to discuss a wide variety of topics such as unity, rhythm, housing, and urban planning. With respect to rhythm, Le Corbusier identifies equalisation (symmetry, repetition); compensation (movement of contrary parts); and modulation (the development of an original plastic invention).¹³

For Le Corbusier, the "plan bears within itself a primary and pre-determined rhythm."¹⁴ Fig. 5.10 shows the rhythm introduced by the structural grid. A simple grid of 4.75m (originally designed as 5.0m) is carried through the elevational composition. Fig. 5.09 shows the column grid at the ground and first



Fig 5.01 - Hindu temple (from *Vers une architecture*)



Fig 5.02 - Villa Savoye

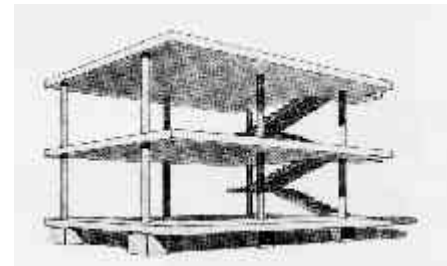


Fig 5.03 - Le Corbusier, Domino project

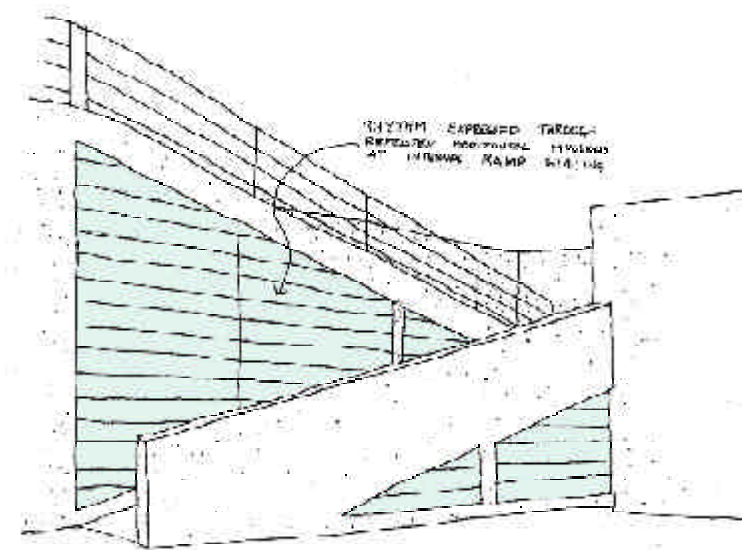


Fig 5.04 - Villa Savoye, study sketch at roof garden ramp showing introduction of rhythm in subcomponents.

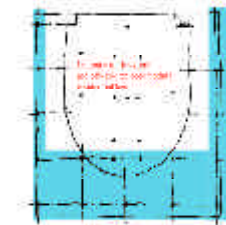
floor level. The highlighted area shows where the grid is 'rational' - - i.e., where the 4.75m dimension is carried through. The area not highlighted is where the grid had to be 'compromised' to accommodate the needs of residential floor plan. The grid therefore seems more 'iconic' than actual. It could further be argued that an independent structural grid, particularly at the first floor and above, could not be justified in a pure 'value engineering' terms for a structure as simple as a single-family house. However, this of course is not the concern on this project, and it is the idea that is carried through and expressed.

Rhythm is also introduced in sub-components of Villa Savoye. The horizontal glazing pattern of the ramp glazing (Fig. 5.04) is an effective use of this technique.

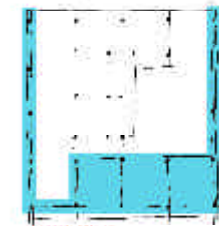
The above is not meant as a negative criticism of Le Corbusier. It does, however, demonstrate the strength of Le Corbusier's design intuition in that he is able to break apart various ordering techniques and recombine them into exceptional works of architecture.



Fig 5.08 - Plan diagram showing hierarchy of ordering elements.



Ground Floor Plan



First Floor Plan

Fig 5.09 - Plan diagram showing structural grid. Shaded area indicates unmodified grid.

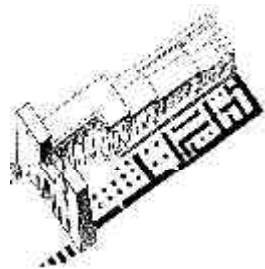


Fig 5.05 - Temple at Thebes (from *Vers une architecture*)



Fig 5.06 - Villa Savoye ground floor entry (from *Oeuvre Complete*)



Fig 5.07 - Villa Savoye

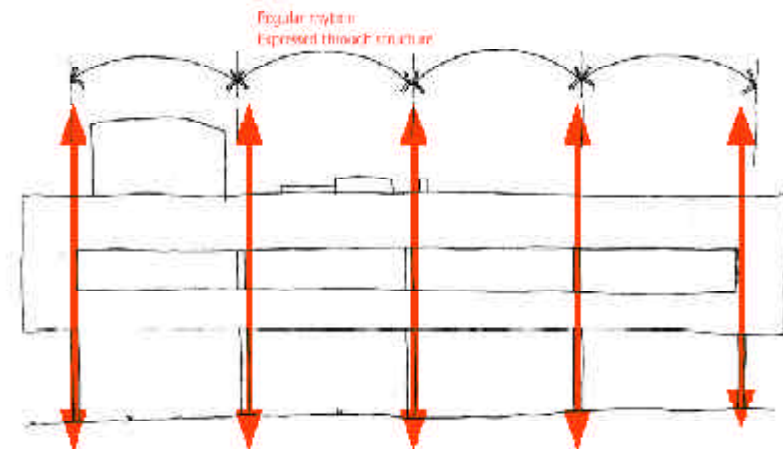


Fig 5.10 - Sketch elevation showing the order introduced by exploiting the structural grid

Compensation

Le Corbusier briefly mentions the Acropolis (Fig. 6.02) as an example of a rhythm of compensating masses. This is within the context of a discussion of the plan governing the massing of buildings.

In my opinion, Villa Savoye is a masterful composition of elements. Fig. 6.07 shows a series of plan diagrams showing the organisational massing at each level. There is an intuitive and sensitive balance apparent at each level. The ground floor balances the entry foyer with the exterior forecourt, offset from the private garage space. The first floor balances the salon / living room with the large roof garden, with a minor offset of the ramp and stair hallway. The roof level balances the small screened roof garden with the void of the roof garden below. These compositions are more powerful in the elevational arrangements and the movement through the spaces, than they are in the static plan diagram.

Figures 6.04 to 6.06 are a series of perspective sketches that show the balance and massing of different elements of Villa Savoye. It is difficult to find an element that feels either out of place or out of proportion. There is also a subtle gradation of emphasis on different elements. This is particularly important as one moves through the building and experiences the spaces relative to each other. For example, in the roof garden shown in figure 6.06, the larger enclosed mass to the left acts as a major visible anchor. There are several subtle horizontal elements in contra-position – the roof, strip windows, and the outdoor table. The ramps give a delicate diagonal opposition to primary Cartesian elements.



Fig 6.01 - Le Corbusier, main door into Ronchamp



Fig 6.02 - Villa Savoye roof garden (from *Oeuvre Complete*)

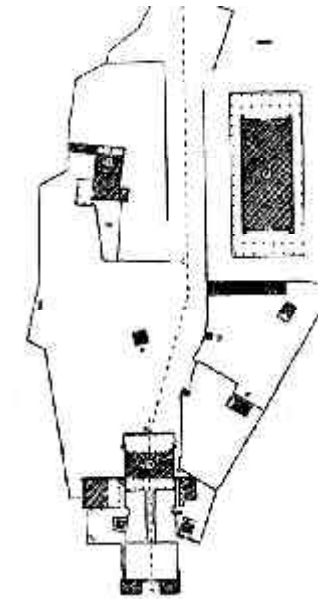


Fig 6.03 - Plan of the Acropolis (from *Vers une architecture*)

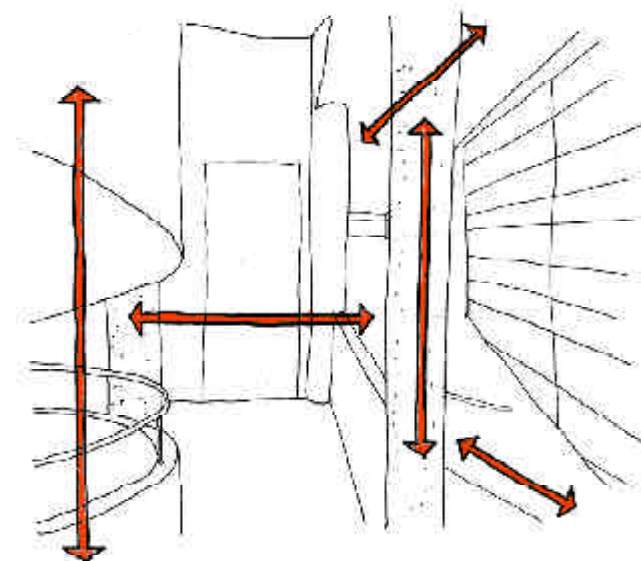


Fig 6.04 - Sketch of first floor hallway

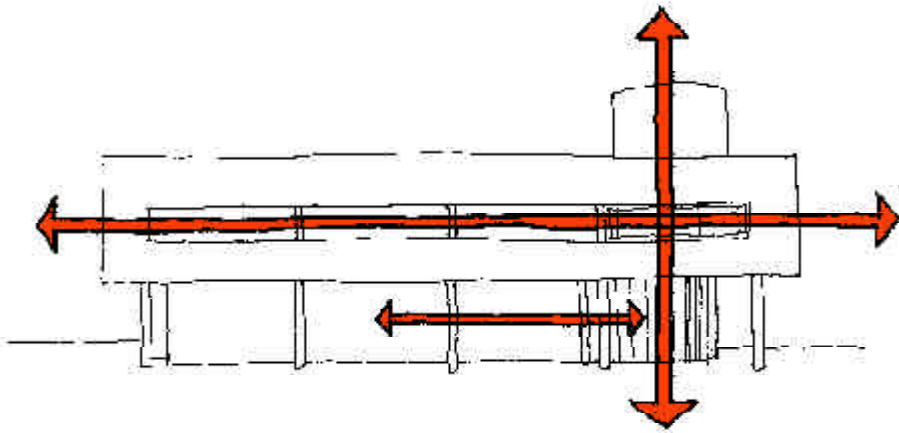


Fig 6.05 - Sketch elevation

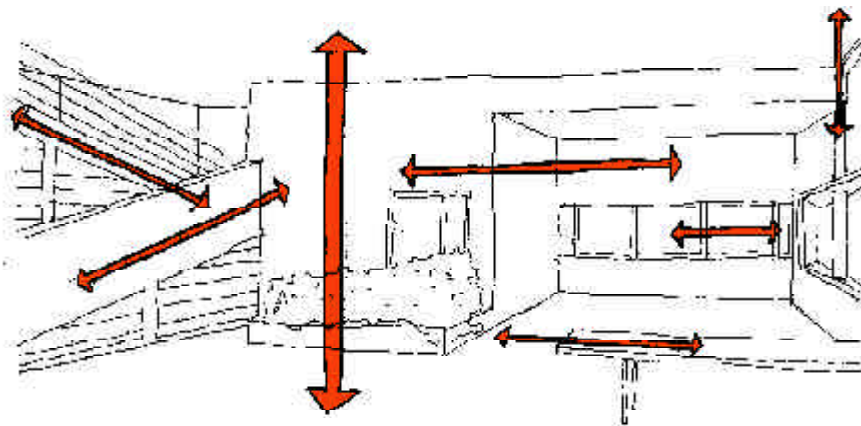
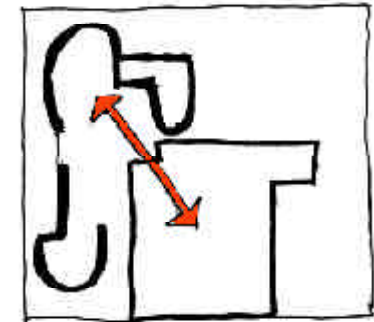
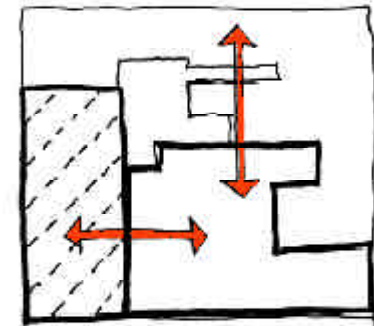


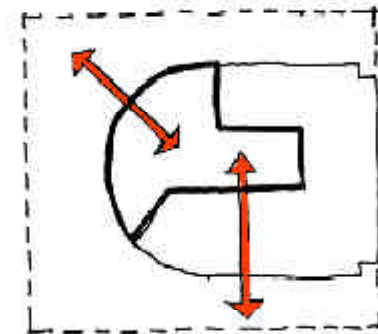
Fig 6.06 - Sketch perspective of roof garden



Second Level Plan



First Level Plan



Ground Level Plan

Fig 6.07 - Plan diagram showing balancing of masses

Modulation

The third aspect of rhythm that Le Corbusier identifies in *Vers une architecture* is modulation. He gives the example of Santa Sophia (Fig. 7.03), where "the plan influences the whole structure: the geometrical laws on which it is based and their various modulations are developed in every part of the building."¹⁵

Beyond this relatively minor explanation, Le Corbusier does not elaborate any further on this theme. However, it does explain a way of thinking and looking at buildings, which is reflected in the Villa Savoye.

Figures 7.04 and 7.12 are perspective sketches of the first floor hallway and first floor roof garden, respectively. There is a balance and proportion between the elements. I suspect that this balance and proportion is ultimately achieved by a very discerning eye on Le Corbusier's part, and considerable reworking of the design until it 'felt' right.

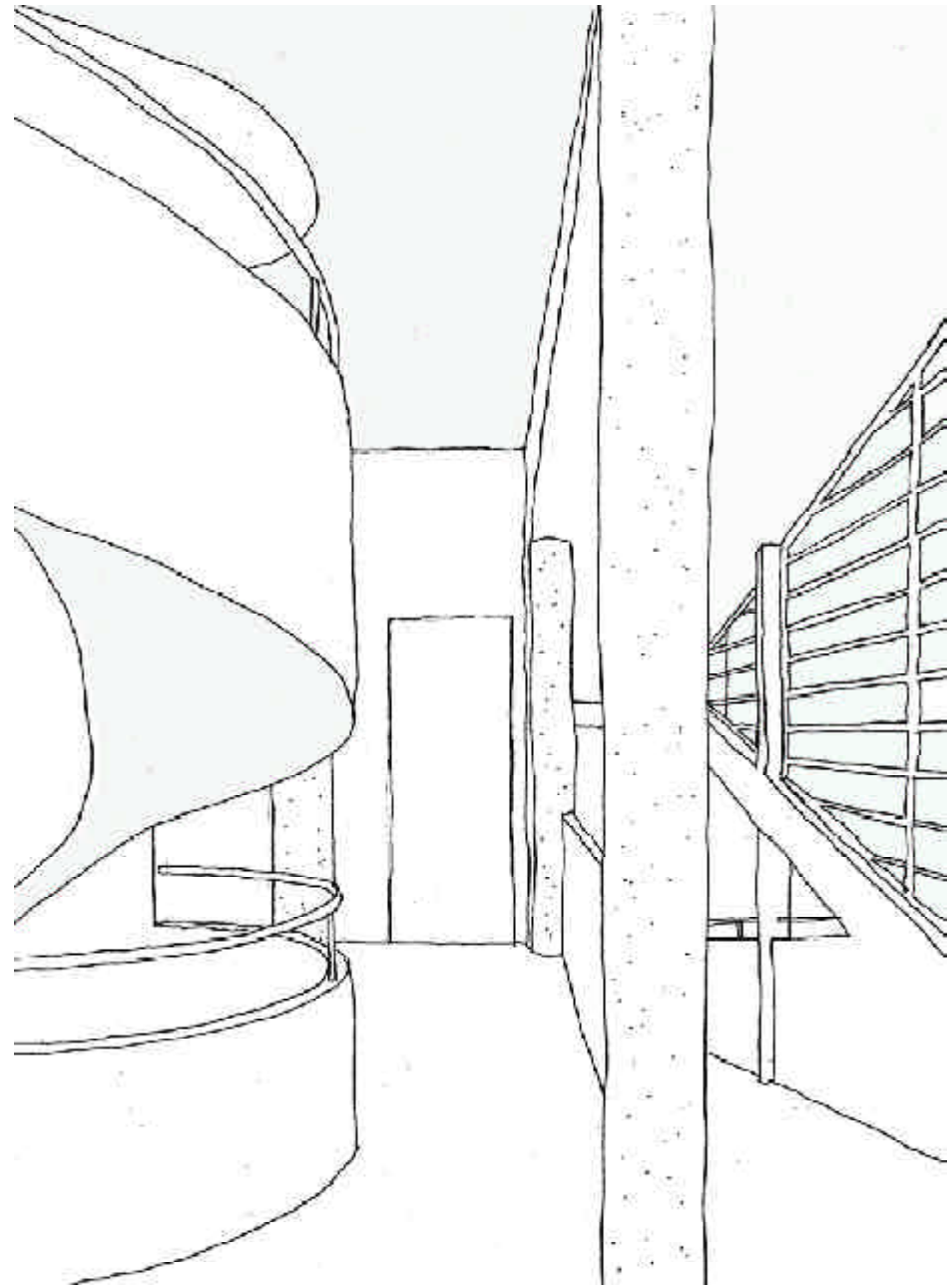


Fig 7.04 - Sketch of first floor hall

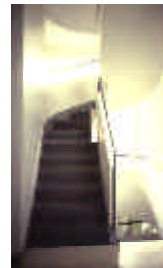


Fig 7.02 - Villa Savoye, main staircase



Fig 7.01 - Villa Savoye, view from living room to roof garden



Fig 7.03 - Santa Sophia (from *Vers une architecture*)

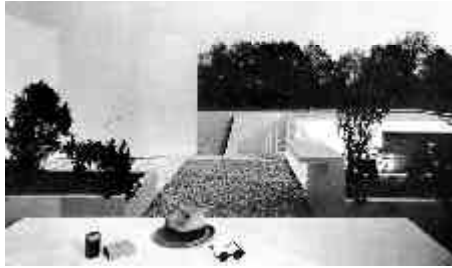


Fig 7.05 - Villa Savoye, roof solarium

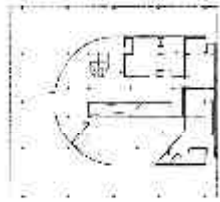


Fig 7.09 - Villa Savoye, ground level plan



Fig 7.10 - Villa Savoye, first level plan

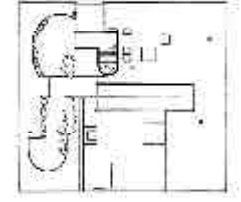


Fig 7.11 - Villa Savoye, second level plan

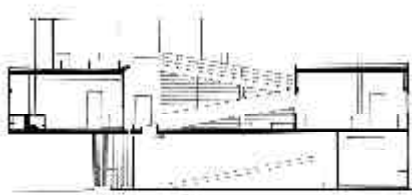


Fig 7.06 - Villa Savoye, south-north section looking west

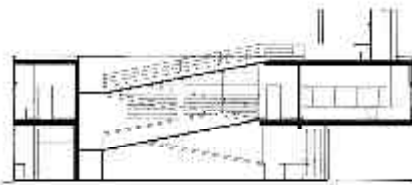


Fig 7.07 - Villa Savoye, north-south section looking east

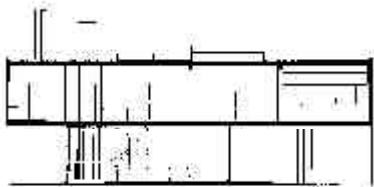


Fig 7.08 - Villa Savoye, west-east section looking north

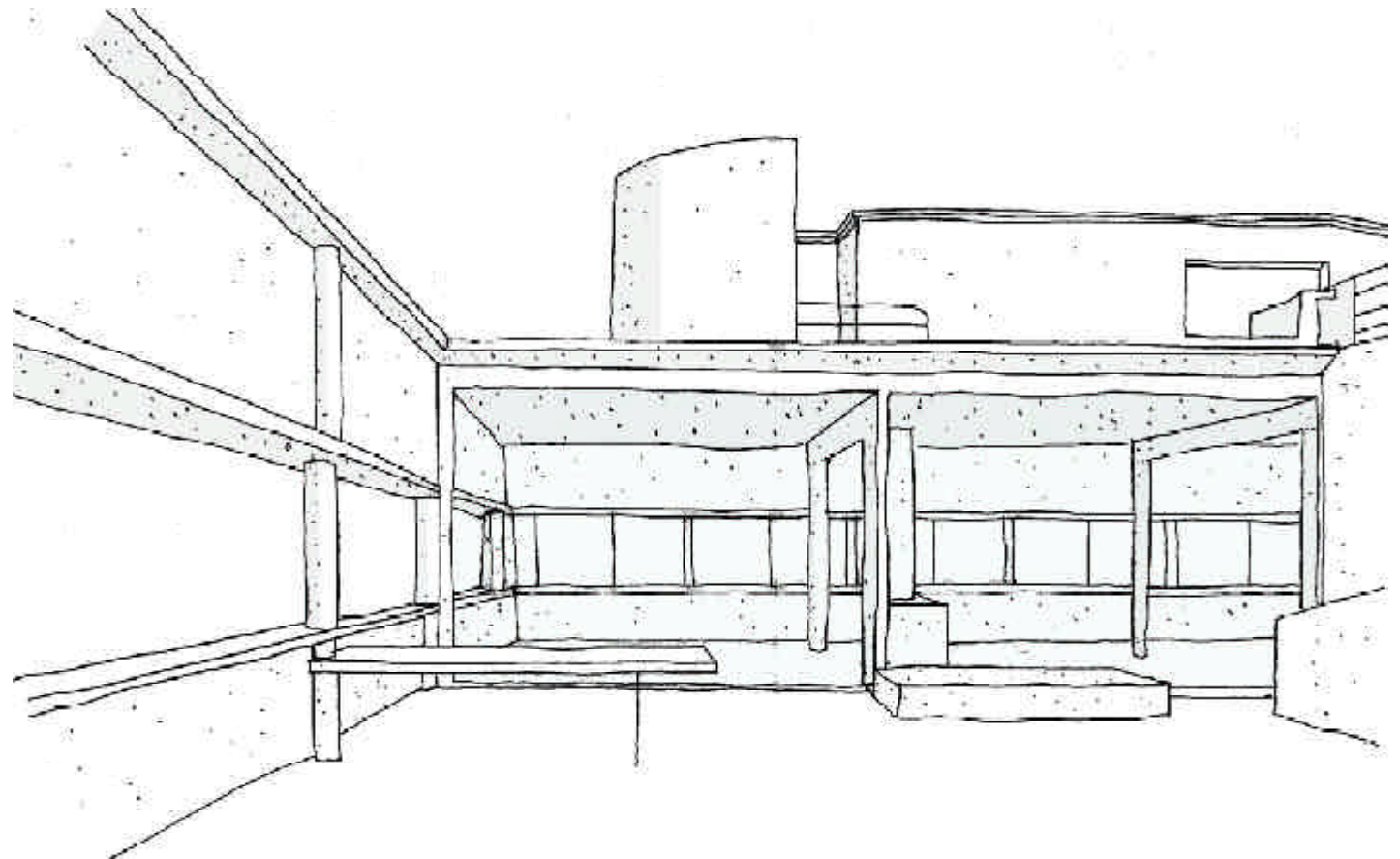


Fig 7.12 - Sketch perspective of roof garden looking towards living room.

Architectural Promenade

The concept of the architectural promenade is very important in the work of Le Corbusier. Surprisingly, this gets very little mention in *Vers une architecture*. Le Corbusier does however mention:

An axis is perhaps the first human manifestation; it is the means of every human act. . . The axis is the regulator of architecture . . . Arrangement is the grading of axes, and so it is the grading of aims, the classification of intentions.

The architect therefore assigns destinations to his axes. These ends are the wall (the plenum, sensorial sensation) or light and space (again sensorial sensation).¹⁶

The *architectural promenade* through the Villa Savoye is an important element of the design. Fig. 8.05 highlight the central ramp and stair. In the earliest schemes, there was only a ramp for circulation, with presumably the stair being added at the client's request. From the ground floor looking up the ramp (Fig. 8.04), one is drawn up due to the light whose source is not immediately visible. At the first floor, the main living floor, (Fig. 8.02) the ramp and stair are the main features of the "foyer". As one ascends, there is a developing view of the roof garden . . . the "courtyard in the sky" around which the plan is developed.

This use of light to draw one up the ramp and into the roof garden is a subtle, but powerful element used to define the architectural promenade.

In Villa Savoye, the spaces themselves are rather simple – for example, the first floor salon is a rectangular volume. The magic comes in the inter-relationships of the various spaces, their composition, massing, and sequence of moment through them. The sequence of movement through the Villa Savoye is more of an experience in itself. It is through this movement that one perceives the brilliant compositional arrangements. This is very different from someone such as Frank Lloyd Wright for whom the processional route prepared one to experience the principal spaces in the design. Figs. 8.13 and 8.14 show a comparison of the architectural promenade in the Villa Savoye and Wright's Unity Temple.



Fig 8.01 - Villa Savoye - main stair



Fig 8.02 - Villa Savoye - Stair and ramp



Fig 8.03 - Sketch by Le Corbusier of Villa Savoye roof garden

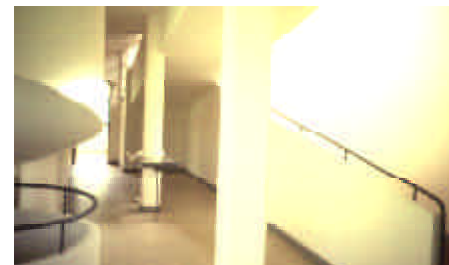


Fig 8.04 - Villa Savoye - Stair and ramp

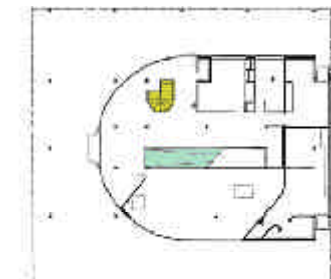
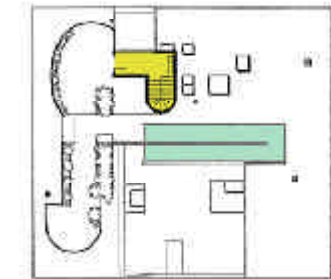


Fig 8.05 - Diagram showing circulation

The procession in the Unity Temple is very controlled, and very much controls the perception of the church hall. At Villa Savoye, the procession up the ramp allows one to see and appreciate the forms and compositions from multiple vantage points.



Fig 8.07 - Villa Savoye , on approach (from *Oeuvre Complete*)



Fig 8.08 - Villa Savoye, near front door (from *Oeuvre Complete*)



Fig 8.09 - Villa Savoye, ground level reception area (from *Oeuvre Complete*)

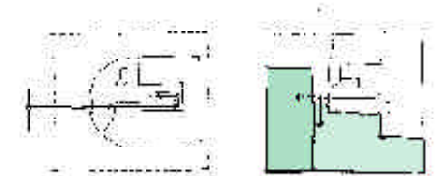


Fig 8.13 - Movement diagram through Villa Savoye



Fig 8.10 - Villa Savoye, ramp from roof garden to solarium (from *Oeuvre Complete*)



Fig 8.11 - Villa Savoye, roof garden (from *Oeuvre Complete*)

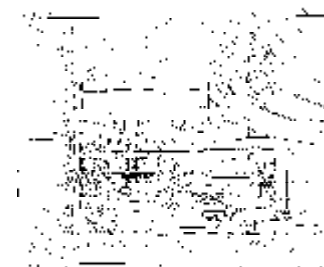


Fig 8.12 - Sketch by Le Corbusier of Wanner residence

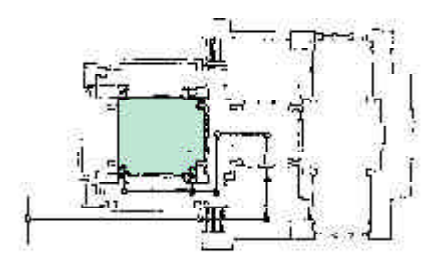


Fig 8.14 - Movement diagram through Unity Temple (Frank Lloyd Wright)



Fig 8.06 - Villa Savoye roof garden viewed from Living Room

Five Points of Architecture

In 1926, two years before design started on the Villa Savoye, Le Corbusier and Pierre Jeanneret published a manifesto/declaration entitled "Five points towards a new architecture." This is a short manifesto that "in no way relates[s] to aesthetic fantasies or a striving for fashionable effects, but concern architectural facts that imply an entirely new kind of building."¹⁷

Perhaps due to its brevity, the manifesto does not explain why these five points are important, or what relevance they have to works of architecture. However, Le Corbusier was a man to whom ideas were fundamental. It is therefore interesting to see some of the results of his thought processes, even if the underlying rationale is not made clear.

The five points can be summarised as 1) Supports; 2) Roof gardens; 3) Free design of the ground plan; 4) Horizontal windows; and 5) The free design of the façade. Perhaps not surprisingly, the Villa Savoye is a clear example of a building incorporating these five points.

By supports, Le Corbusier states the ground level of buildings should be raised 3 to 6 metres above existing grade, so that "the rooms are thereby removed from the dampness of the soil; [and]they have light and air."¹⁸ The main floor of Villa Savoye is set one level above grade. With the exception of bedrooms for the servants (who apparently are not covered by this manifesto), there are no primary rooms at grade level.

What this does is to literally and figuratively separate the house from the ground (fig. 9.08). It is an interesting contrast to other design philosophies that seek to merge the dwelling with the earth, and to incorporate the experience of a tactile *terra firma* in a design. However, the disassociating the house with the ground does allow the perception and experience of the house to be more cerebral . . . ie, it allows one to fully appreciate the Absolute harmonies to which the composition is attuned.

It is also interesting consider in this context Le Corbusier's ideas of urban planning, particularly the Voisin project (fig. 9.11). Here are a series of free-standing towers set amongst landscaped fields. It is this same mental approach that is found in the siting of the Villa Savoye, although on a very much reduced scale.

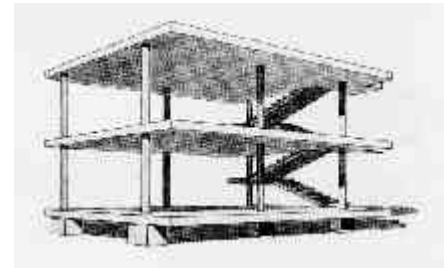


Fig 9.01 - Domino project by Le Corbusier

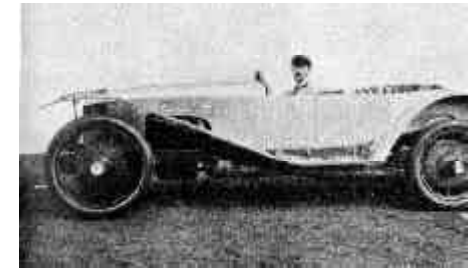


Fig 9.02 - Motorcar (from *Vers une architecture*)



Fig 9.03 - Villa Savoye entrance

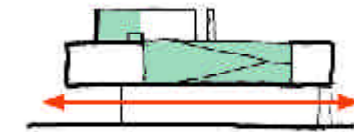


Fig 9.04 - Roof track at Fiat factory, Turin (from *Vers une architecture*)

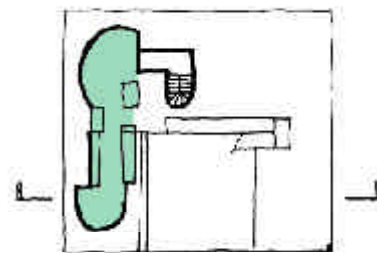


Fig 9.05 - Villa Savoye roof garden

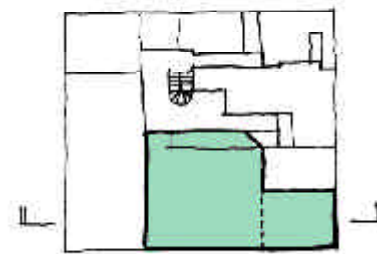


Fig 9.06 Diagram showing placement and orientation of roof gardens

The roof garden is obviously provided in Villa Savoye. Similar to the argument above, a roof garden, as opposed to a garden planted at grade, is mentally disassociated with the surrounding landscape. One can appreciate the verdant roof terrace, but the feel is distinctly different than a grade level garden.

The use of roofs for other purposes was not new to Modern architecture. Le Corbusier cites the famous example of the race track on the roof of the Fiat factory in Turin (fig. 9.04). This is a striking image of 'new' and 'modern' which was critically important to the modern movement. One suspects that it was not the object *per se* that was important, but rather the idea of breaking from a very structured 19th century past and its social conventions. I suspect that there is an element of this thinking in both this manifesto point, and in its realisation in the Villa Savoye.

The free design of the ground plan involves several ideas. First, there is the idea of an independent structural system that carries the floors separate from the walls. This was previously espoused by Le Corbusier in his Domino project (fig. 9.01). This allows walls and partitions to be merely screens, and to be positioned wherever desired. Secondly, there is the idea of bringing the landscape under the outline of the building.

Villa Savoye uses the independent structural system, but as previously noted, with the exception of certain visible public zones, the columns are placed to suit residential space planning requirements. The idea is still there, but the purity of concept has been compromised.

The idea of screen walls is also emphasized in Villa Savoye. The ground level has a screen wall (fig. 9.03, 9.07) that is obviously non-load bearing. This further mentally separates the house from the physical landscape. The landscaping also extends under the outline of the house, albeit in gravel. This gives the impression that the connection between the house and the landscaping is to be tightly and rigorously controlled. The randomness of nature is 'controlled' in its interaction with the house.

The use of horizontal windows at Villa Savoye is clear (figs. 9.12 and 9.13). This does several things. First, it emphasizes that the wall is non-structural, and that

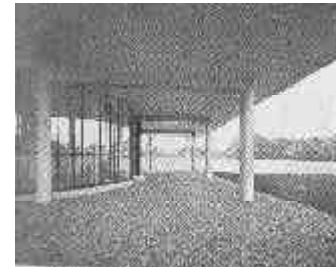


Fig 9.07 Villa Savoye (from *Oeuvre Complete*)



Fig 9.08 Villa Savoye (from *Oeuvre Complete*)



Fig 9.09 Le Corbusier sketch



Fig 9.10 Le Corbusier sketch



Fig 9.11 - Le Corbusier Voisin plan

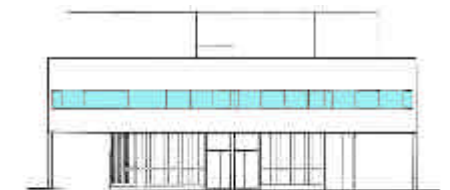


Fig 9.12 - South elevation

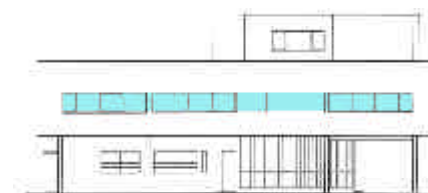


Fig 9.13 - West elevation



Fig 9.14 - Roof garden

the building is held up a separate framing structure. Secondly, it offers an image of 'new' and 'modern' that further emphasizes the shift away from a previous epoch. Finally, and perhaps most importantly, it offers a direct connection and association with the horizon, and as such becomes an element that mediates one's perception of nature, ie, the natural surroundings and horizon are perceived and framed by the man-made structure.

The free design of the façade is a point that seems somewhat gratuitous. The idea of the non-structural aspects of the horizontal window are repeated. The free design of the façade in theory allows an easier application of regulating lines and so forth, but history abounds with many geometrically ordered buildings constructed of load-bearing masonry.



Fig 9.15 - Le Corbusier sketch



Fig 9.16 - Le Corbusier sketch



Fig. 9.17 - Le Corbusier sketch



Fig 9.18 - Le Corbusier sketch of Villa Savoye roof garden (from *Oeuvre Complete*)



Fig 9.19 - Villa Savoye roof garden (from *Oeuvre Complete*)

Miscellaneous Observations

Fig. 10.04 shows the delineation between public and private space in the Villa Savoye. It is the public spaces that have the most interest to them. With the exception of the master bathroom (Fig. 10.03), the remaining private spaces are rather bland. It is in the public spaces that one primarily experiences the movement through spaces, the proportions and massing, and the interaction between inside and outside.

It is interesting to note that the bedrooms do not have access onto the main first floor roof garden. It is a very deliberate choice that Le Corbusier has made, and one that would not be required in terms of either the client's brief, or the cost of construction. It almost appears that Le Corbusier provided these spaces because he had to (it is after all a house), and that given the choice, he would have excluded them.

Peter Carl makes the following interesting observation:

The horizon is both the most distant boundary – the limit where sky and 'sea' are at once joined and separated – and optically dependent upon individual location. This fusion of universal and particular in a joining-separating boundary recalls the balance point, the reconciling unity of two differences, in the Platonic thematics of ratio; and for this reason the horizon is a key element of the mediative structure of Le Corbusier's space.¹⁹

I have previously noted the use of horizontal windows as a means of structuring the view of the horizon. On Villa Savoye, the roof garden has a series of horizontal 'windows' (ie openings with no glazing in them). Le Corbusier could of course have omitted the window wall entirely at this point, using only a railing. However, one would not experience the intellectual control and ordering that is imposed by experiencing the horizon through the horizontally framed openings.



Fig 10.01 Villa Savoye (from *Oeuvre Complete*)



Fig 10.02 - Villa Savoye, living room (from *Oeuvre Complete*)



Fig 10.03 - Villa Savoye master bathroom

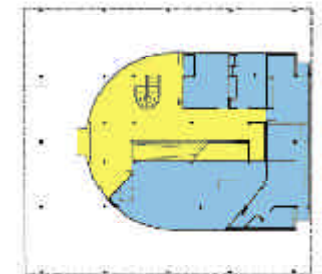
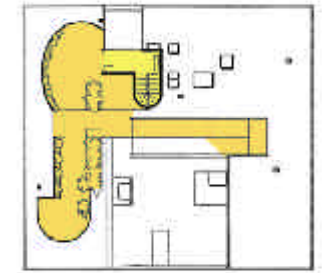
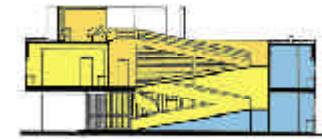


Fig 10.04 - Diagram showing public and private spaces

Conclusion

This short paper can not cover the scope and depth of Le Corbusier's work, either in buildings or in text. Many issues are not touched upon (eg the unconscious, mythology, etc). Some of these appear in the Villa Savoye, but are not alluded to in *Vers une architecture*, and vice versa.

One can not precisely pin-down an explicit theory with Le Corbusier, either through a treatise such as *Vers une architecture*, or through a single building such as the Villa Savoye. However, by looking at them both, and by looking at them in multiple focused ways, one can begin to acquire an understanding and appreciation of the ideas at work.

Le Corbusier's approach to architecture was intellectually driven. The order exhibited in the architecture was a mediative element that was meant to relate the individual to higher, absolute order. With this as a viewpoint, Le Corbusier was tremendously consistent in applying these principles. Le Corbusier did not place as much importance on the phenomenological aspects of architecture. The difference in results can be seen in works by Aalto and Wright who were more phenomenologically oriented.

For Le Corbusier, ideas mattered a great deal. Often, the abstract purity of the idea would be compromised by the practicalities of its realisation, but the underlying idea and driving force remains. Because of this, one can put together, in a tapestry-like fashion, a collage of the ideas of Le Corbusier. The urban ideas that infuse the Voisin plan are reflected in the Villa Savoye. The striving towards an abstract purity based on mathematical composition can be seen in projects as diverse as the Villa at Garches or the monastery at La Tourette.

In my observation, many of the references found in the Villa Savoye are self-referential. By this I mean that a mental construct is envisaged that does not have a direct bearing in everyday perception or reality. The ordering systems and compositions then masterfully reinforce this mental construct, and this in part adds to the deep intellectual resonance of the work. For me though, as brilliant a work as it is, there is a questionable gap between the mental construct as shown in the Villa Savoye and the perception and use by a normal person.



Fig 11.01 - Parthenon (from *Vers une architecture*)



Fig 11.02 - Villa Savoye solarium

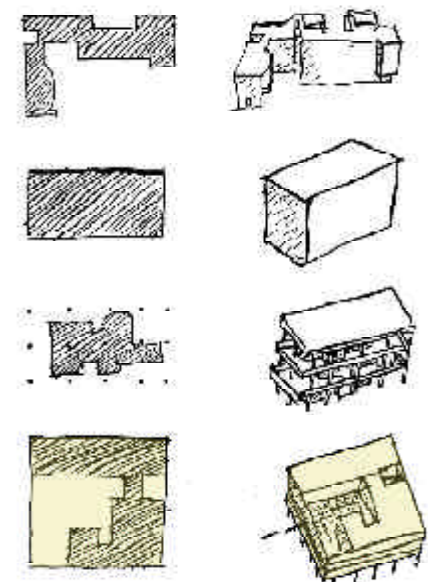


Fig 11.03 - Compositional sketches by Le Corbusier

It appears that for Le Corbusier, the person perceiving the architecture can not comprehend the essence of architecture directly. This essence must be comprehended through visibly expressed ordering systems. It is these ordering systems that mediate between the absolute and the individual.

For all of the rational arguments and explanations by Le Corbusier, I feel that the design of the Villa Savoye (and many other projects as well) was largely intuitive. There are many examples where theoretically rigorous rules have been broken (e.g., regulating lines, proportioning ratios, etc.) with the resulting composition being one that ultimately decided by personal judgment. The wellspring from which these designs emanated is deeper than the ability of Le Corbusier to rationally explain. This perhaps accounts for why the texts are often contradictory, as Le Corbusier was not necessarily rationally certain as to what he was trying to express.

Villa Savoye represents a powerful evolution in the work of Le Corbusier. Fig. 11.03 shows sketch made by Le Corbusier showing the composition of four buildings; Maison La Roche, Villa at Garches, Villa at Stuttgart, and finally, the Villa Savoye. One can see the build-up of ideas through the several compositions – a tightening of the volume from Maison La Roche to Garches; the free plan from Garches to Stuttgart; and the roof garden and mental separation from the landscape in Garches to Villa Savoye.



Fig 11.04 - Villa Savoye living room



Fig 11.05 - Airplane (from *Vers une architecture*)



Fig 11.06 - Villa Savoye living room



Fig 11.07 - Villa Savoye roof garden

Notes

- 1 A detailed description of the design process of Villa Savoye, together with drawings of the different versions is given by Tim Benton, (Benton 1987).
- 2 *Vers une architecture*, p 23.
- 3 Wittkower, R. *Architectural Principles in the Age of Humanism*, (Norton, 1971) p 7
- 4 *Vers une architecture*, p 187.
- 5 Carl, P. AA Files No. 22, (London, 1991) p 48.
- 6 *Vers une architecture*, p 101.
- 7 *Vers une architecture*, p 31.
- 8 Rowe, C. *Mannerism and Modern Architecture, in The Mathematics of the Ideal Villa and Other Essays*, (MIT Press, 1982) p. 42.
- 9 *Vers une architecture*, pp 37-39.
- 10 *Vers une architecture*, p 44.
- 11 *Vers une architecture*, p 52.
- 12 Carl, P. AA Files No. 22, (London, 1991) p 49.
- 13 *Vers une architecture*, p 48.
- 14 *Vers une architecture*, p 47.
- 15 *Vers une architecture*, p 47.
- 16 *Vers une architecture*, p 173.
- 17 Le Corbusier and Jeanneret, P., *Five points towards and new architecture*, in *Programs and manifestoes on 20th-century architecture*, Conrads, U. - Editor, (MIT Press 1975) p 99.

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Illustration Sources

See References section for full information about each publication

1.01	Vers une architecture	5.06	Oeuvre Complete; Volume 2, 1929-1934	1914-1946
1.02	Photo by author	5.07	Photo by author	8.13
1.03	Oeuvre Complete; Volume 2, 1929-1934	5.08	Diagram by author	8.14
1.04	In the Footsteps of Le Corbusier	5.09	Diagram by author	9.01
2.01	Vers une architecture	5.10	Diagram by author	9.02
2.02	Vers une architecture	6.01	Photo by author	9.03
2.03	In the Footsteps of Le Corbusier	6.02	Oeuvre Complete; Volume 2, 1929-1934	9.04
2.04	Photo by author	6.03	Vers une architecture	9.05
2.05	GA 13	6.04	Diagram by author	9.06
2.06	Architectural Principles in the Age of Humanism	6.05	Diagram by author	9.07
2.07	Vers une architecture	6.06	Diagram by author	9.08
2.08	GA 13	6.07	Diagram by author	9.09
2.09	GA 13	7.01	Photo by author	9.10
2.10	In the Footsteps of Le Corbusier	7.02	Photo by author	9.11
2.11	Vers une architecture	7.03	Vers une architecture	9.12
3.01	Vers une architecture	7.04	Diagram by author	9.13
3.02	Vers une architecture	7.05	In the Footsteps of Le Corbusier	9.14
3.03	Photo by author	7.06	GA 13	9.15
3.04	Photo by author	7.07	GA 13	9.16
3.05	Vers une architecture	7.08	GA 13	9.17
3.06	Vers une architecture	7.09	In the Footsteps of Le Corbusier	9.18
3.07	Diagram by author	7.10	In the Footsteps of Le Corbusier	9.19
4.01	The Modulor	7.11	In the Footsteps of Le Corbusier	10.01
4.02	Diagram by author	7.12	Diagram by author	10.02
4.03	Vers une architecture	8.01	Photo by author	10.03
4.04	Vers une architecture	8.02	Photo by author	10.04
4.05	Oeuvre Complete; Volume 1, 1910-1920	8.03	Oeuvre Complete; Volume 1, 1910-1920	11.01
4.06	Leon Battista Alberti – The Complete Works	8.04	Photo by author	11.02
4.07	Vers une architecture	8.05	Diagram by author	11.03
4.08	Vers une architecture	8.06	GA 13	11.04
4.09	Photo by author	8.07	Oeuvre Complete; Volume 2, 1929-1934	11.05
5.01	Vers une architecture	8.08	Oeuvre Complete; Volume 2, 1929-1934	11.06
5.02	Photo by author	8.09	Oeuvre Complete; Volume 2, 1929-1934	11.07
5.03	The Mathematics of the Ideal Villa and Other Essays	8.10	Oeuvre Complete; Volume 2, 1929-1934	
5.04	Diagram by author	8.11	Oeuvre Complete; Volume 2, 1929-1934	
5.05	Diagram by author	8.12	Le Corbusier's Sketchbooks; Volume 1, 1914-1946	