

**INTERPRETING FRANK LLOYD WRIGHT'S FALLINGWATER AND ALVAR  
AALTO'S VILLA MAIREA USING KARSTEN HARRIES' NATURAL  
SYMBOLS AND THOMAS THUIS-EVENSEN'S ARCHITECTURAL  
ARCHETYPES**

By

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A THESIS

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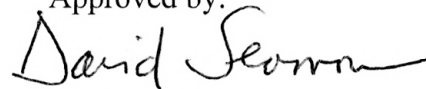
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## ABSTRACT

This study uses philosopher Karsten Harries' theory of natural symbols (Harries, 1983) and architect Thomas Thiis-Evensen's theory of architectural archetypes (Thiis-Evensen, 1987) to explore how a non-arbitrary architecture is achieved in two 20<sup>th</sup> century houses—Frank Lloyd Wright's Fallingwater (1936) and Alvar Aalto's Villa Mairea (1938). The examination of the two houses through Harries' natural symbols explicates the two buildings' inside-outside, light-dark, horizontal-vertical, up-down, and center-periphery relationships. In turn, Thiis-Evensen's three archetypes—the floor, wall and roof—concretize these natural symbols as they find architectural expression through the three existential expressions of motion, weight and substance. Primarily, the thesis focuses on the question of how an inside is created in the midst of outside in the two houses. This inside-outside interpretation of the two houses is demonstrated to be grounded in commonly shared bodily experiences that point to a universal level of architectural experience.

The thesis concludes that a non-arbitrary architecture—an architecture that interprets the world as a meaningful order in which individuals can find their place in the midst of nature and community—can be derived from natural symbols, which in turn are derived from the basic expressions of people's being-in-the-world. A comparison and contrast of Fallingwater and Villa Mairea demonstrate noteworthy architectural expressions and meanings that indicate major design concepts and principles that underlie the design of the two houses. For example, making nature a source, means and end, and

establishing linked contrasts among natural symbols are ways whereby the two houses express a non-arbitrary architecture. In addition, fulfilling humans' natural predilection for prospect and refuge and designing for an inclusive multi-sensory experience helps one understand the powerful architectural expression of the two houses.

|           |  |    |
|-----------|--|----|
| CHAPTER 1 | INTRODUCTION   | 1  |
|           | CREATING A LANGUAGE OF ARCHITECTURE                  | 1  |
|           | The Two houses                                       | 1  |
|           | Wright's Pulling-wire                                | 6  |
|           | Walter's Villa Mairea                                | 15 |
| CHAPTER 2 | ARCHITECTURE, DWELLING AND KARSTEN HARRIS            | 17 |
|           | THEORY OF NON-ARBITRARY ARCHITECTURE                 | 17 |
|           | Dwelling, Home, and House                            | 18 |
|           | Karsten Harris' Theory of Non-Arbitrary Architecture | 27 |
|           | A language of choice                                 | 31 |
| CHAPTER 3 | ELEMENTS IN THEORY OF ARCHITECTURE                   | 30 |
|           | ARCHITECTURE   | 30 |
|           | The Floor  | 32 |
|           | The Wall   | 37 |
|           | The Roof   | 38 |
| CHAPTER 4 | PULLING-WIRE AND VILLA MAIREIRA AS THEY EXPRESS      | 41 |
|           | THE NATURAL SYMBOLS OF INSIDE AND OUTSIDE            | 41 |
|           | Prospect and Refuge                                  | 42 |
|           | Innocentia   | 54 |
|           | Packaging  | 61 |
| CHAPTER 5 | PULLING-WIRE AND VILLA MAIREIRA AS THEY EXPRESS      | 67 |
|           | THE NATURAL SYMBOLS OF LIGHT/DARK,                   | 67 |
|           | HORIZONTAL/VERTICAL, PROXIMAL AND DISTANT,           | 67 |
|           | PERIPHERY  | 67 |
|           | Light and Dark                                       | 68 |
|           | Horizontal and Vertical                              | 75 |
|           | Center and Periphery                                 | 81 |

# TABLE OF CONTENTS

|            |  | Page<br>No. |
|------------|--|-------------|
|            | LIST OF FIGURES                                      | iii         |
|            | ACKNOWLEDGMENTS                                      | ix          |
|            | DEDICATION   | x           |
| CHAPTER 1. | INTRODUCTION   |             |
|            | CREATING A LANGUAGE OF ARCHITECTURE                  | 1           |
|            | The Two houses                                       | 4           |
|            | Wright's Fallingwater                                | 6           |
|            | Aalto's Villa Mairea                                 | 12          |
| CHAPTER 2  | ARCHITECTURE, DWELLING AND KARSTEN HARRIES           |             |
|            | THEORY OF NON-ARBITRARY ARCHITECTURE                 | 18          |
|            | Dwelling, Home, and House                            | 18          |
|            | Karsten Harries Theory of Non-Arbitrary Architecture | 22          |
|            | A language of space                                  | 25          |
| CHAPTER 3  | THIIS-EVENSEN THEORY OF ARCHETYPES IN                |             |
|            | ARCHITECTURE   | 30          |
|            | The Floor  | 33          |
|            | The Wall   | 35          |
|            | The Roof   | 38          |
| CHAPTER 4  | FALLINGATER AND VILLA MAIREA AS THEY EXPRESS         |             |
|            | THE NATURAL SYMBOL OF INSIDE AND OUTSIDE             | 42          |
|            | Inbetweeness   | 44          |
|            | Interpenetration                                     | 53          |
|            | Intermingling  | 61          |
| CHAPTER 5  | FALLINGATER AND VILLA MAIREA AS THEY EXPRESS         |             |
|            | THE NATURAL SYMBOLS OF LIGHT-DARK,                   |             |
|            | HORIZONTAL-VERTICAL, UP-DOWN, AND CENTER-            |             |
|            | PERIPHERY  | 71          |
|            | Light and Dark                                       | 72          |
|            | Horizontal and Vertical                              | 79          |
|            | Center and Periphery                                 | 93          |
|            | The Linked Concepts                                  | 101         |
|            | Multi-Sensory Experience                             | 102         |
|            | Achieving a Non-Arbitrary Architecture               | 103         |
|            | REFERENCES   | 105         |
|            | APPENDIX   | 107         |

|  | Page<br>No. |
|--|-------------|
| <b>CHAPTER 6</b>   |             |
| <b>INTERPRETING THE FLOOR OF FALLINGWATER AND<br/>VILLA MAIREA USING THIIIS-EVENSEN'S<br/>ARCHITECTURAL ARCHETYPES</b>   | 101         |
| The Natural Floor of the Two Houses  | 102         |
| The Floor Materials and the Two Houses   | 105         |
| Motion and the Floors of the Two Houses  | 111         |
| Stairs and the Two Houses  | 114         |
| <b>CHAPTER 7</b>   |             |
| <b>INTERPRETING THE ROOF OF FALLINGWATER AND<br/>VILLA MAIREA USING THIIIS-EVENSEN'S<br/>ARCHITECTURAL ARCHETYPES</b>  | 118         |
| Motion, Weight and the Roof of the Two Houses  | 118         |
| Substance and the Two Roofs  | 127         |
| <b>CHAPTER 8</b>   |             |
| <b>INTERPRETING THE BREADTH AND HEIGHT THEME OF<br/>ROOF OF FALLINGWATER'S AND VILLA MAIREA'S<br/>WALL USING THIIIS-EVENSEN'S ARCHITECTURAL<br/>ARCHETYPES</b> | 132         |
| The Breadth Theme and the Two Houses   | 134         |
| The Height Theme and the Two Houses  | 140         |
| <b>CHAPTER 9</b>   |             |
| <b>INTERPRETING THE DEPTH THEME OF ROOF OF<br/>FALLINGWATER'S AND VILLA MAIREA'S WALL USING<br/>THIIIS-EVENSEN'S ARCHITECTURAL ARCHETYPES</b>                  | 147         |
| The Main Forms of the Two Houses   | 147         |
| Building System  | 155         |
| Openings   | 160         |
| <b>CHAPTER 10</b>  |             |
| <b>CONCLUSION</b>  | 163         |
| Harries' Natural Symbols   | 163         |
| Thiis-Evensen's Architectural Archetypes   | 167         |
| Underlying Design Principles   | 172         |
| Nature as a Source, Means, and End   | 172         |
| The Concept of Prospect and Refuge   | 176         |
| The Linked Contrasts   | 181         |
| Multi-Sensory Experience   | 186         |
| Achieving a Non-Arbitrary Architecture   | 189         |
| <b>REFERENCE</b>   | 192         |
| <b>APPENDIX</b>  | 194         |

## LIST OF FIGURES

- Figure 1.1. Aalto's early sketches of Villa Mairea, right, indicate Fallingwater's influence.
- Figure 1.2. Southwest view overlooking the creek, Bear Run.
- Figure 1.3. Southeast view of Fallingwater with bridge leading to main entrance.
- Figure 1.4. South elevation, the approach to the main entrance.
- Figure 1.5. Site plan and west elevation.
- Figure 4.1. An Increased sense of insidiness in Fallingwater is created by the opacity of the masonry walls at the north side while an increased feeling of outsidiness is created by the transparency of glass windows on the south, southwest and southeast side.
- Figure 4.2. An Increased sense of insidiness in Mairea is created by the opacity of the solid walls at the main entrance and the fireplace while an increased feeling of outsidiness is created by the transparency of the continuous glass windows on the south, south west, north, and north west windows.
- Figure 4.3. The deep entryway and balconies illustrate in-between places in Fallingwater.
- Figure 4.4. The entrance canopy, the covered terrace, terrace beneath the studio illustrate in-between places in Villa Mairea.
- Figure 4.5. Fallingwater's circuitous path that leads from the outside to the inside.
- Figure 4.6. Villa Mairea's circuitous path that leads from the outside to the inside.
- Figure 4.7. Fallingwater. Absence of wall and frame at corners immensely decreases the house's sense of enclosure.
- Figure 4.8. Fallingwater's windows link the inside and outside in horizontal axis, while the living room stair to Bear Run links the inside with the outside in a vertical axis.
- Figure 4.9. Interpenetration. Parts of a building that stretch out to the landscape and project the inside to the outside.
- Figure 4.10. Interpenetration. The outside space cradled by the building mass becomes a link between inside and outside. Here outside stands in the field of inside.

- Figure 4.11. Interpenetration. Fallingwater's projecting trellis over the driveway, west terrace, plunge pool, boulder at fireplace, and horizontal entrance wall all tie the house to the natural landscape.
- Figure 4.12. Interpenetration. The entrance canopy, the rustic stonewall, the covered terrace turf roof, and the pergolas leading to the forest all work to tie Villa Mairea with the natural landscape.
- Figure 4.13. Section showing interpenetration. The projecting balconies in Fallingwater cradle the outside space and generate another spatial link between inside and outside.
- Figure 4.14. Interpenetration. Mairea's U-Shape floor plan cradles the outside courtyard space. The inside holds the outside.
- Figure 4.15. The boulder and fireplace as a phenomenon of the ground and presence of the outside in the inside.
- Figure 4.16. Villa Mairea's roughly cut stone fireplace as an element of the outside in the inside.
- Figure 4.17. Metaphorical representation of the wetness of the stream in the inside. The waxed flagstone floor has a striking resemblance to the surface of the water as it is seen through the stair that runs down to Bear Run.
- Figure 4.18. The arrangement of Villa Mairea's columns as singles, pairs and triples, and their different treatment confuses the conventional structural grid system. The columns, along with the non-structural columns and wooden poles, echo in Mairea's living room the rhythm of the outside forest.
- Figure 4.19. The undulating glazed units above the library bookshelves simulate the forest light and dissolve the partition into a forest screen.
- Figure 4.20. The plants, roughly dressed stone flooring, use of natural cladding materials for the wall and ceiling, the transparency of the windows, all give the flower room features unique to an outside space. The whole appearance of the room evokes images of traditional Japanese architecture.
- Figure 4.21. The presence of the rustic fireplace in the covered terrace: its furnishing, the clean and tidy finishing for the columns and ceiling elevates the terrace to an outdoor room furnish with a sense of warmth, comfort and safety typical of an inside space.
- Figure 5.1. In Fallingwater, the relationship of dark inside and light outside gives the opportunity to see without being seen.

Figure 5.2. In Villa Mairea, the relationship of dark inside and light outside gives the opportunity to see without being seen.

Figure 5.3. Light and dark in terms of something and nothing in Fallingwater.

Figure 5.4. Light and dark in terms of something and nothing in Villa Mairea.

Figure 5.5. Horizontal elements in Fallingwater.

Figure 5.6. Horizontal elements in Villa Mairea.

Figure 5.7. The vertical fireplace wall as a gathering middle in Fallingwater.

Figure 5.8. The studio wall treated with vertical slats as a gathering element in Villa Mairea.

Figure 5.9. Dominance of horizontality over verticality in Villa Mairea.

Figure 5.10. Balance between verticals and horizontals in Fallingwater.

Figure 5.11. The horizontal course of stone masonry as a continuation of the rock ledges of Bear Run.

Figure 5.12. In Fallingwater, the interior detailing of horizontal decorations on the walls and the stone masonry echo the horizontal expression of the exterior.

Figure 5.13. In Villa Mairea, verticality is a dominant theme in the interior space, while horizontality is the major theme to the exterior. The spontaneous vertical rhythm of columns in the living area and non-structural, vertical poles on the staircase and the entrance hall repeat the vertical forest rhythm.

Figure 5.14. The strong sense of up and down in Fallingwater establishes a vertical axis.

Figure 5.15. Though the formal expression of Fallingwater seems predominantly horizontal, experientially it involves both horizontal—through the horizontally stretching space and terraces—and vertical—through the strong sense of up and down generated by layers of balconies.

Figure 5.16. The horizontality of Fallingwater and Villa Mairea creates a strong interlace with the verticality of the surrounding forest.

Figure 5.17. The intersection created by the two diagonal axes relationship between Fallingwater's main entrance and the southwest balcony punctuated by the stone pier, and between the fireplace and the southeast stair that runs down to Bear Run and punctuated by another stone pier establish a strong sense of center for Fallingwater.



Figure 5.18. A center in the living room of Villa Mairea is created by the diagonal axis established between entrance and fireplace, main staircase and view to the outside.

Figure 5.19. Villa Mairea's sauna bath, the swimming pool, the rustic fireplace, and the rustic stonewall are peripheral elements that establish a center in the middle. In this center, we feel inside and surrounded by nature's primordial forces—fire, water and rusticity.

Figure 6.1. The relation of Fallingwater's floor with natural floor.

Figure 6.2. The relation of Villa Mairea's floor with natural floor. .

Figure 6.3. Fallingwater's waxed flagstone floor finish.

Figure 6.4. Villa Mairea's floor treated with various finishing materials.

Figure 6.5. Fallingwater's waxed flagstone floor finish strikingly resembles Bear Run.

Figure 6.6. Villa Mairea's living room reflective tiles optically detached the columns and the furniture from the floor; these elements appear as if they stand only on their shadows.

Figure 6.7. Fallingwater's non-directional floor patterns the shape of the space as one big room emphasizing centeredness and repose.

Figure 6.8. The arrangement of spaces and floor treatment in Villa Mairea generates movement in Diagonal axis (direction).

Figure 6.9. Fallingwater's hovering first floor longs to touch the ground by its stair that runs down to the Bear Run. This stair directs us from the safe inside to the exposed outside with a potential expression of hazard and humility.

Figure 6.10. Villa Mairea's wooden stair directs us from a more public zone to the safe haven of a private zone with a potential expression of security and uplift.

Figure 7.1. Fallingwater's flat concrete roofs generate an outward horizontal motion that opens up the building and engages it with its landscape.

Figure 7.2. Villa Mairea's flat ceiling generates an outward horizontal motion that opens up the building and engages it with its landscape.

Figure 7.3. Fallingwater's living room ceiling tapers upward in three levels. The stepping-up effect generates an upward motion that lifts the ceiling to the sky above.

Figure 7.4. The use of glass on much of Fallingwater's wall makes the roof look detached and independent. As a result the roof evokes a rising or hovering impression.

Figure 7.5. Villa Mairea's first floor ceiling seems to rise in an upward direction and defy gravity because of the round columns that give an impression that the slab is not attached to the column shafts anymore.

Figure 7.6. The detachment of Villa Mairea's ceiling from the library's solid wall gives a floating effect to the ceiling. Further, the high solid wall that pushes the opening field to the top accentuates the uplift and rising effect of the ceiling.

Figure 7.7. The downward motion generated by the heavy-appearing flagstone floor, and the upward motion created by the uplifting and independent-appearing ceiling tends to open up Fallingwater's interior to the outside.

Figure 7.8. The stepping-stones set over gravel bedding on Villa Mairea's main roof evoke an image of a Japanese Garden.

Figure 7.9. Villa Mairea's roofscape exhibits a mixed miniature of the Finnish Landscape.

Figure 8.1. The continuous glass opening that runs between the two vertical stone masonry walls tends to split the building apart into two major sections.

Figure 8.2. The major part of the south elevation expresses the breadth motif by the series of openings and the balconies that expand the building towards us.

Figure 8.3. Villa Mairea's rustic canopy projecting out to the street expresses the right motif of the breadth theme by gravitating our attention to the right side of the building.

Figure 8.4. Fallingwater's main entrance is not experienced as a right motif, although the entry is located at the right side of the east elevation. In contrast to Villa Mairea's conspicuous entrance, Fallingwater's entrance is hidden and is discovered only gradually.

Figure 8.5. Fallingwater's upper balconies seem to sink, while the lower balconies seem to rise above the depth beneath. As a result, a split motif is generated as the house is suspended in the air and hovers above the landscape.

Figure 8.6. On the right side of Villa Mairea's main elevation, the lower field pushes the middle field upward, which disconnects the first floor from the outside, while engaging the upper floor with the outside. Refuge is emphasized in the lower floor and prospect in the second floor.

Figure 8.7. Villa Mairea's courtyard elevations express a sinking motif. The horizontal window located low in the walls increases the expression of a sinking effect. Unlike the rising motif and solid lower field of the main entrance elevations that resists penetration, the open lower fields of the courtyard elevations make the courtyard an extension of the interior space by inviting the outside into the inside.

Figure 9.1. The motion impulse created by Fallingwater's horizontal stone masonry wall allures us to follow along beside it to the main entry and then to the enclosed and secured inside.

Figure 9.2. Villa Mairea's dominant horizontal wall arouses an impulse to follow along beside it in either direction towards the forest rather than allowing a direct penetration towards the interior.

Figure 9.3. Fallingwater's stretching horizontal balconies create an impulse to follow along beside them in either direction infinitely, a pattern which augments the closed and delimiting character of the house.

Figure 9.4. The horizontal course of Fallingwater's stone masonry walls demonstrates the compressed and compact impression.

Figure 9.5. The asymmetrical angle of Villa Mairea's curved studio wall tilts to the courtyard to clearly direct us toward the courtyard.

Figure 9.6. Fallingwater's massive structure and open interior. Villa Mairea's skeleton and layer system.

Figure 9.7. The presence of Villa Mairea's wall is more strongly felt than Fallingwater's because Villa Mairea's wall maintains a continuous surface, while Fallingwater's is fragmented into an equal degree of openings and solids.

Figure 9.8. Fallingwater's and Villa Mairea's horizontally oriented windows tend to cut across the inside to the outside thereby strengthening the sense of insideness of the houses.

Figure 10. 1. The poles of each dimension are associated with each other.

Figure 10.2. Diagram illustrating possible connections among Harries' theory of natural symbols, Appleton's prospect-refuge theory, and Jacobson's theory of contrast.

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## DEDICATION

This thesis is dedicated to my dearest parents, to my father Mulugeta Assefa (Eyyaya) and to my mother Negat Brehane Meskel (Ematteye), for whom I attribute all my success.

According to the architectural philosopher Kristen Harrier, man's being in the world involves two contrasting aspects. First, "our being in the world is being with others" (Harrier, 1993, p. 36), which means, by their fellow human beings, for the exchange of ideas, feelings, and projects. This aspect of *being-in*, therefore, refers to the social and public world. Second and in contrast, our being in the world is to be oneself, in the sense of having a small chosen world of our own (Norberg-Schulz, 1984, p. 7). This aspect of *being-in* refers to one's private domain. Harrier writes that architecture offers a crucial foundation and support for both these modes of being in the world (Harrier, 1993, p. 36). On one hand, social and public architecture typically provides a community with a *communal* center. On the other hand, the house provides a *personal* center for the individual in reference to the larger community. Hence, architecture, through organized space and built form, establishes "solidarity and identification so that human experience brings a meaningful existence in a given environment, both in terms of personal and communal significance" (Norberg-Schulz, 1984, p. 7).

Harrier writes that a key task of architecture is "interpreting the world as a meaningful order in which the individual can find his place in the midst of others, not in the midst of a community" (Harrier, 1993, p. 36). Harrier argues, however, that "if buildings don't respond to the needs of human dwelling, because they are made without

## CHAPTER 1

### INTRODUCTION

#### CREATING A LANGUAGE OF ARCHITECTURE

According to the architectural philosopher Karsten Harries, man's being in the world involves two contrasting aspects. First, "our being in the world is being with others" (Harries, 1993, p. 56), which means to meet fellow human beings for the exchange of ideas, feelings, and products. This aspect of human life, therefore, refers to the social and public world. Second and in contrast, our being in the world is to be oneself, in the sense of having a small chosen world of our own (Norberg-Schulz, 1984, p. 7). This aspect of human life refers to one's private domain. Harries writes that architecture offers a crucial foundation and support for both these modes of being in the world (Harries, 1993, p. 56). On one hand, sacred and public architecture typically provides a community with a *communal* center. On the other hand, the house provides a *personal* center for the individual in reference to the larger community. Therefore, architecture, through organized space and built form, establishes orientation and identification so that human experience beings a meaningful existence in a given environment, both in terms of personal and communal significance (Norberg-Schulz, 1984, p. 7).

Harries writes that a key task of architecture is "interpreting the world as a meaningful order in which the individual can find his place in the midst of nature and in the midst of a community" (Harries, 1993, p. 51). Harries argues, however, that often buildings don't respond to the needs of human dwelling because they are made arbitrarily

instead of being let to arise out of the requirements of particular people, places and landscapes. A non-arbitrary architecture, as an expression and interpretation of human life, involves design that both listens to and incorporates nature and culture. He also argues that “the less nature and culture determine what we have to be, the greater is our freedom; the greater also the dread of arbitrariness” (ibid, p. 43).

Architecture, according to Harries, needs to be based on what he called *natural symbols*—the underlying patterns of experience that mark the essential qualities of human nature and life, for example, qualities of direction, of weight, of materiality, of light and so forth. Natural symbols often express themselves in lived dialectics like up and down, vertical and horizontal, inside and outside, and center and boundary (ibid, p. 54). These natural symbols, Harries writes, “are simply derived from the analysis of people’s being in the world,” and, in this sense, the human body is “a measure of all things” (ibid, p. 53).

In line with Harries’ argument for a non-arbitrary architecture, the Norwegian architect Thomas Thiis-Evensen presents the possibility of establishing an architectural theory based on the entire phenomenon of architecture itself. In his *Archetypes in Architecture* (Thiis-Evensen, 1987), he highlights a contrast between two extreme current belief systems, which he says involve either rational technology or subjective creativity and have generated a crisis in architects’ and users’ relationship to architecture. Thiis-Evensen raises the need that human beings have for something stable and universal—a basis for prediction and recognition and the need for personal and emotional identification.

To better understand how architecture can contribute to and generate existential meaning, Thiis-Evensen seeks a common language of architecture that we can

immediately understand, regardless of individual or culture. This language speaks to how architecture affects us psychologically without the influence of time or region. He says that behind the plurality of the many architectural forms in history lies a simple set of archetypes, which he calls the “grammar of architecture” (ibid., p. 17). He attempts to classify a set of particular archetypes that contribute to an understanding of the universality of architectural expression (ibid., p. 8-9). He identifies these underlying structures or archetypes as the *floor*, the *wall*, and the *roof* (ibid.).

In this thesis, I explore and demonstrate how a non-arbitrary architecture is achieved in two 20<sup>th</sup> century houses—Frank Lloyd Wright’s Fallingwater and Alvar Aalto’s Villa Mairea. I interpret these two houses in light of Harries’ theory of non-arbitrary architecture and Thomas Thiis-Evensen’s theory of archetypes. Identifying the underlying design principles and patterns that engendered the two houses with an architectural expression relating to the universal level of human experience is the major focus of my research.

In examining the two houses from the perspective of Harries and Thiis-Evensen, my thesis takes the following outline:

- Chapter 1 presents a detailed description of Fallingwater and Villa Mairea. I also justify why I have chosen to examine these particular houses for interpretation.
- Chapter 2 presents a general discussion of architecture and dwelling, and a review of Harries’ theory of non-arbitrary architecture.
- Chapter 3 presents Thiis-Evensen’s theory of architectural archetypes.
- Chapters 4 - 9 are the main body of the thesis and present a Harries and Thiis-Evensen interpretation of Fallingwater and Villa Mairea, respectively;



- Finally, in chapter 10, I summarize the findings of my research by identifying experiential similarities and underlying design principles that recur in both houses. I also discuss implications of my research for architectural education and design.

## **The Two Houses**

This thesis is an interpretative case study of two 20<sup>th</sup> century houses that have gained much attention from the professional and lay public. Both Wright's Fallingwater and Aalto's Villa Mairea were conceived and implemented within the same decade—the 1930s. Wright was already sixty-eight when he built Fallingwater and had designed dozens of important residencies when he began work on Fallingwater in 1935. Alvar Aalto, by comparison, was still fairly young—only thirty-nine, and he had not designed a single large residence when he began Villa Mairea. Here I explain why I have chosen to examine these particular houses from the perspective of Harries' and Thiis-Evensen's theories and respectively describe each house in detail.

Pallasmaa (1985) writes that Wright's Fallingwater, Aalto's Villa Mairea, Le Corbusier's Villa Savoye, Mies van der Rohe's Tugendhat House, and Pierre Chareau and Bernard Bijvoet's Glass House are "the seminal houses of the 20<sup>th</sup> Century" (ibid, p. 1). Among these houses, Wright's Fallingwater and Aalto's Villa Mairea are selected as case studies for the purpose of this thesis largely because of their similarities in intention and design. Upon the request of Aalto's client Harry Gullichsens, Fallingwater provided a major inspiration for Aalto's early sketch phase of Villa Mairea" (Pallasmaa, 1998, p. 78). As figure 1.1. clearly suggests thought-provoking parallels and experiential

similarities prevail between the two houses. Pallasmaa writes that “resemblances in their ambience are not so clear in the drawings or even the photographs, but the actual experience of the two houses forces one to a comparison” (ibid.).

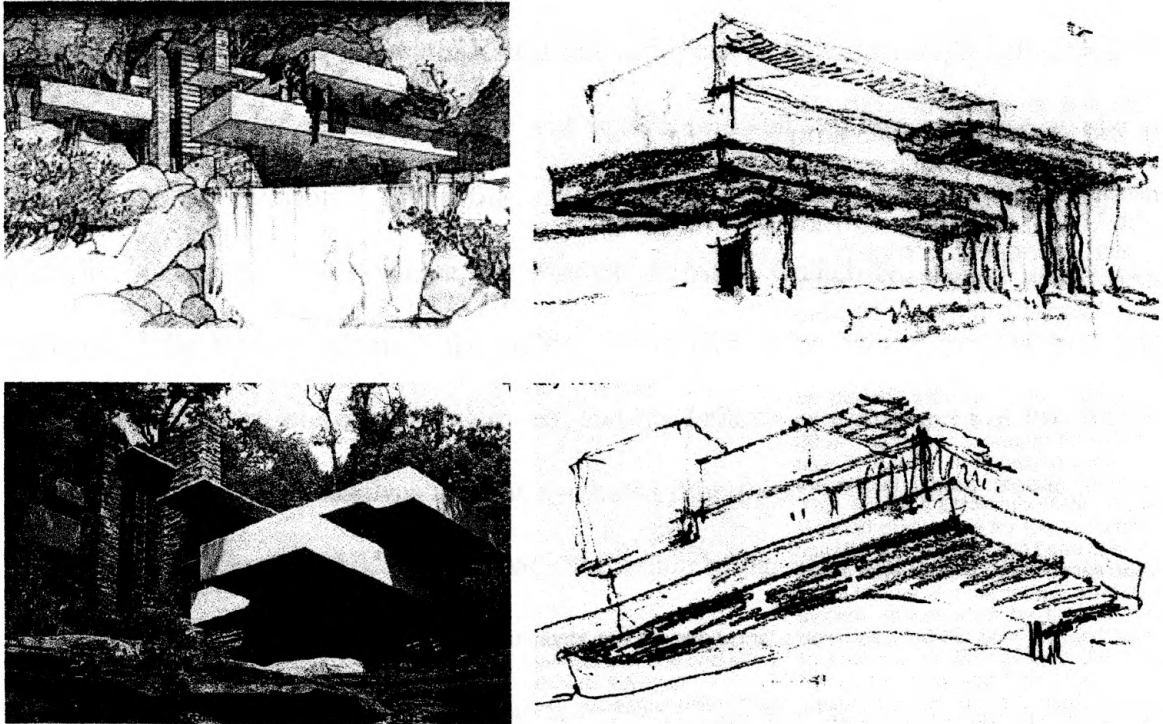


Figure 1.1 Aalto's early sketches of Villa Mairea, right, indicate Fallingwater's influence. (Pallasmaa, 1998, p. 78)

In this sense, it can be said that the two architects share a common creative ground in pursuing a certain natural order that give a timeless expression to architecture. Porphyrios writes that Wright and Aalto shared thoughts that consider nature as “the source, and end, and test of art” (Porphyrios, 1982, p. 60). Wright professed that he “could draw inspiration from nature herself” (Wright, 1954, p. 22). Aalto, in a similar way, claimed that “the profoundest feature of architecture is a variety and growth reminiscent of natural life. I should like to say that in the end this is the only real style in architecture” (Aalto, 1978, p. 34).

Another shared characteristic of the two houses is that their owners and clients expressed great satisfaction with their respective architects. Edgar J. Kaufmann told Wright that “ My money has bought me a great many fine things in life, but none of them have brought me greater joy than the house you built for me on Bear Run” (Pfeiffer, 1986, p. 82). On another occasion, Kaufmann said that “ in Fallingwater Wright captured the perfect essence of our desire to live with nature, to dwell in a forested place and be at home in the natural world” (Waggoner, 1996, p. 14). One finds similar expressions of pleasure in regard to Villa Mairea, for example Kristian Gullichsen, son of the clients, said that Villa Mairea reflects “ the architect’s reading of his clients’ personalities: my mother’s passionate interest in modern art, and my father’s career in the forest industry. The cubist form world dissolves into the symbols of the forest” (Gullichsen, 1998, p. 11). Similarly, critic Goran Schildt writes that “the origin of the Villa Mairea is closely bound up with the lives, ambitions and achievements of its owners” (Schildt, 1998, p. 24).

We next need to describe the two houses in greater detail, beginning with Fallingwater.

### **Wright’s Fallingwater**

Frank Lloyd Wright was born on June 8, 1869, in Richland Center, Wisconsin. His early influences were his clergyman father's playing of Bach and Beethoven and his mother's gift of geometric blocks. Wright entered the University of Wisconsin at fifteen as a special student, studying engineering because the school had no course in architecture. Wright left Madison in 1887 to work as a draftsman in Chicago. The next year he joined the firm of Adler and Sullivan, soon becoming Louis Sullivan's chief

assistant. Wright was assigned most of the firm's house designs. Eventually, Wright left Sullivan and set up his own office.

As an independent architect, Wright became the leader of a style known as the "Prairie School." Houses with low-pitched roofs and extended lines that blend into the landscape typify the style. Considered the most influential architect of his time, Wright designed over 1,000 structures, some 400 of which were built. In 1932 he established the Taliesin Fellowship and private school of architecture directed by Wright and his third wife Olgivanna. In 1932, at the end of the Great Depression in America, Wright was already sixty-five years old, an age most people are already well into their retirement years. Wright had written his autobiography during those slow years, summing up his seminal contributions to the development of an American architecture (McCarter, 1997, p. 203).

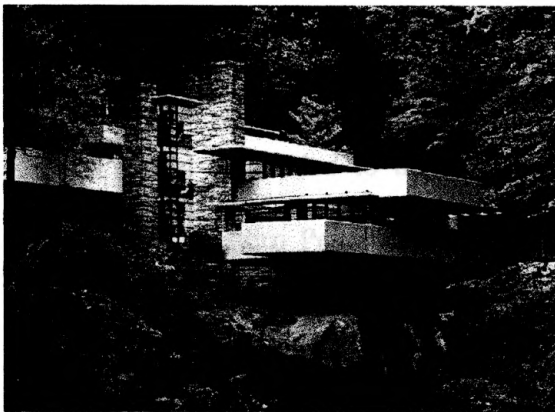


Figure 1.2. Southwest view overlooking the creek, Bear Run. (Kaufmann, 1986, p. 89)

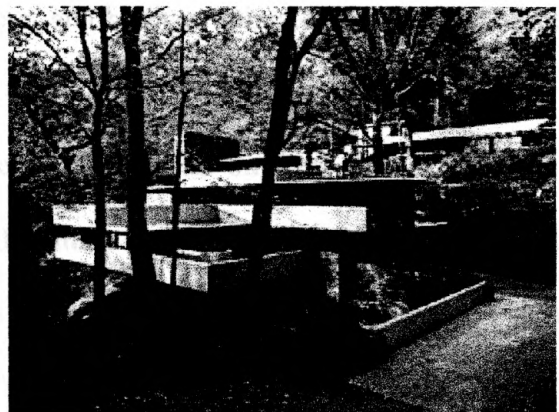


Figure 1.3. Southeast view of Fallingwater with bridge leading to main entrance.

One of the apprentices who joined the Taliesin fellowship in October 1934 was Edgar Kaufmann, Jr., a young art student whose father was Edgar Kaufmann, owner

of a chain of Department stores in Pittsburgh. At the end of 1934, Kaufmann's parents visited their son at Taliesin, and Wright was commissioned to design a country house on Bear Run, an Appalachian mountain Stream in Southwest Taliesin.

After his visit to the site for Fallingwater, in December, 1934 Wright wrote in a letter to his client, "The visit to the waterfall in the woods stays with me and a domicile has taken vague shape in my mind to the music of the stream. When contours come you will see it" (Pfeiffer, 1986, p. 82). In an interview with Hugh Downs in 1954, Wright expressed his feeling about the site: "There in a beautiful forest was a solid, high rock ledge rising beside a waterfall, and the natural thing seemed to be to cantilever the house from that rock bank over the falling water... Then came (of course) Mr. Kaufmann's love for the beautiful site. He loved the site where the house was built and liked to listen to the waterfall. So that was a prime motive in the design. I think that you can hear the waterfall when you look at the design. At least it is there, and he lives intimately with the thing he loves" (Wright, 1979, p. 211).

Wright responded to the family's love for a waterfall on Bear Run, a stream in mountainous western Pennsylvania about eighty miles southeast of Pittsburgh. Imitating the natural pattern established by the streams rock ledges, Wright placed the house over the falls in a series of cantilevered concrete "trays," anchored to masonry walls made of the same Pottsville sandstone as the rock ledges. When Wright explained the first sketches to his client, Mr. Kaufmann said, "I thought you would place the house near the waterfall, not over it." Mr. Wright replied, "E.J., I want you to live with the waterfall, not just to look at it, but for it to become an integral part of your lives" (Mosher, 1974, p. 17). McCarter elaborates this point by stating the critical difference between hearing (the

intimate, nearer experience of daily life), and simply looking (the formal, distant experience of the perspective view). He notes the American philosopher John Dewey, who said: “the eye is the sense of distance while sound itself is near and intimate” (McCarter, 1993, p. 214). At Fallingwater the waterfall underlies our experience, permeating all of our senses, including most strongly our hearing and our haptic sense—the sense of bodily position and movement in space (ibid.).

The plan of Fallingwater was developed partly from Wright’s earlier Prairie Houses. The basic organization of a cruciform interpenetrating a square is to be found here, as is the typical asymmetrical, spiraling perimeter movement pattern and hidden entrance (ibid, p. 207). However, some historians have claimed that the design for Fallingwater was inspired by the International Style of architecture (ibid, p. 206). Nevertheless, Wright was specific in saying of Fallingwater: that “the ideas involved here are in no wise changed from those of early work. The materials and methods of construction come through them. The effects you see in this house are not superficial effects, and are entirely consistent with prairie houses of 1901-10” (Wright, 1941, p. 232). Wright further stated that the house he designed for Mrs. Thomas Gale, designed in 1904 and built in Oak Park in 1909, with its horizontal planes and balconies projecting from a core of vertical slab-like walls, was the “progenitor as to general type for Fallingwater” (McCarter, 1997, p. 206).

In Fallingwater Wright has created a powerful dichotomy: the natural rock layers are repeated almost exactly, in thickness and random pattern of setting, in the vertical walls that emerge from the boulders above the waterfall, while the light colored horizontal reinforced-concrete terraces and roof planes outcrop from this rock wall core,

cantilevering both along and across the stream. The stability of the house, its rooted condition, is unexpectedly emphasized and reinforced by the flow of water under it (ibid, p. 211). In regard to the appearance of the house to having grown from its site, Wright explained that “ it is in the nature of any organic building to grow from its site, come out of the ground into the light—the ground itself held always as a component basic part of the building itself” (Wright, 1954, p. 44). Wright further explained that “ In the stony bone work of the earth, the principles that shaped stone as it lies, or as it rises and remains to be sculpted by winds and tied—there sleep forms enough for all the ages, for all of man” (Wright, 1928, p. 177).

The most dramatic, memorable, and well-known image of Fallingwater is the view from the southwest, just below the first falls, where the house seems to rise from the stream and float effortlessly over it. It is this view Wright chose for the perspective he drew for Kaufmann as most fully representing the total effect of the house in its site, as well as the one most often reproduced in photographs. But this image of the house can be deceptive because the view it represents does not actually reveal itself until after one has seen the house, experienced its interior space, and left. The perspective is ideal and recapitulative, collapsing the disparate perceptions of experience into one. To understand the house, then, one should to start with it but end with it, building toward it step by step (Menocal, 2000, p.58).

The first view of Fallingwater, as one approaches from the distant road, is seen through a veil of trees, as if rising up the far bank of the stream. Menocal describes this experience: “At Fallingwater the image one retains is of something more fragile and evanescent, like bands of smoke or mist gently ascending and about to dissipate or

evaporate. The nearer one approaches the more solid the forms become. The voids between them begin to read as dark, hollow recesses in the rock, paralleling the stratified layers of the eroded cliff on the far bank of the stream” (ibid.).

From the bridge, writes Menocal, Fallingwater takes on a more active appearance and begins to look like the “ extension of the cliff beside a mountain stream” (ibid, p. 58). As Wright intended, its stone base and walls become visible as part of the rocky ledge from which they emerge. The reinforced-concrete balconies and slabs extend into space like projecting ledges, overlapping one another above the water. One hears the sound of the falls but cannot see them. One senses a drop off beyond the house, but only the height of the trees and the depth of the sky suggest that (ibid.). In order to enter the house, one needs to cross the bridge and turn left to the east side of the building. The entry is deeply recessed between rock walls, a concrete slab header forming a low ceiling over the entry. Hoffmann (1978) notes that “ Wright’s feeling for the site was so keen that the act of crossing the bridge (a span of twenty eight feet) and approaching the entrance of the house (sixty feet past the bridge) would always seem an uphill journey into a private territory, even though the entrance (at three steps below the living room floor) was at an elevation only six inches higher than the bridge roadway” (ibid., p. 27).

Once entering into the living room, it seems to open out in all directions, so that upon passing through the small cave-like entry we find much to our surprise that we can look out to the trees on all sides. From the entry the fireplace, which is founded on the boulder of the site, is located diagonally across the room. Wright had apparently intended to cut the boulder off flat, but Kaufmann suggested it remain as it was when his family used to picnic upon it before the house was built. Hoffmann has noted that “indoors the



flagstones of the floor were sealed and waxed but the boulder was not. It came through the floor like the dry top of a boulder peering above the stream waters" (ibid, p. 56). The stair that is suspended down from the floor to the level of the stream establishes a counter point diagonal axis in relation to the fireplace. Together, the two suggest a vertical axis of "rock-sky, and water-sky" while maintaining a horizontal orientation between the entrance and the terrace over the waterfall (McCarter, 1997, p. 218).

The bedrooms located above the living area are also built with the same sense of rock-walled refuge. McCarter writes that "the whole provides a true sense of shelter, combining the attributes of refuge and outlook" (ibid, p. 220). The natural setting is so integrated into the house that we are constantly reminded of where we are by the sound of the waterfall, the flow of space and movement inside and outside across the floors and terraces. On May 1, 1955, Wright in his talk to the Taliesin Fellowship described his feelings as follows: "Fallingwater is a great blessing - one of the great blessings to be experienced here on earth, I think nothing yet ever equaled the coordination, sympathetic expression of the great principle of repose where forest and stream and rock and all the elements of structure are combined so quietly that really you listen not to any noise whatsoever although the music of the stream is there. But you listen to Fallingwater the way you listen to the quiet of the country..." (Wright, 1979, p. 215).

### **Aalto's Villa Mairea**

We next need to examine Alvar Aalto's Villa Mairea in greater detail. Aalto was born in 1898 in the village of Kuortane, situated between the lake country of central Finland and the flat farmlands of the western province of Ostrobothnia. He was the eldest

of three children in a middle-class family of municipal civil servants. His father was a surveyor. When Aalto was five, the family moved to Jyväskylä. It was to be his home for the next twenty-four years and contains more of his buildings than any other place in the world. He designed seventy buildings for the town and its surroundings, thirty-seven of which were built. After leaving school, Aalto studied at the Helsinki University of Technology where he graduated with a degree in architecture in 1921. Back in Jyväskylä, he opened his first architectural office in 1923.



Figure 1.4. South elevation, the approach to the main entrance



Figure 1.5. Site plan and west elevation

In 1927 Aalto and his wife moved to the southwestern Finnish city of Turku to carry out some important commissions and from there to the Finnish capital, Helsinki, in 1933. During his time in Turku, Aalto's most significant design was the Paimio Sanatorium. It was this building that quickly elevated him to the status of a master of functionalism, a style which he soon abandoned to pursue the harmony of people, their environment and the buildings in which they live. This perception of organic links

between people, nature and buildings matured in the late 1930s when he designed the Villa Mairea, one of the most admired private residences of modern architecture.

When Aalto began Villa Mairea, he was barely forty years old, and his clients, Harry and Maire Gullichsen, were even younger. However, the rich clients were not looking for a conventional type of house. Rather, their desire was something unusual: “What Harry and Maire Gullichsen were looking for was an ideological pioneer who could also handle the practical implementation of the social reform they wished to carry out in their company towns” (Pallasmaa 1998, p. 19).

Aalto was given complete freedom by the Gullichsens to design as he wished. No precise programme was written and the design was actually shaped and changed over time. Programmatic changes occurred particularly in the conception of the common living and reception spaces, the incorporation of the clients’ art collections, guest rooms, and the Gullichsens’ bedroom. The clients explicitly encouraged the architect to experiment (ibid, p. 70). As Maire Gullichsen later explained, “we told him that he should regard it as an experimental house; if it didn’t work out, we wouldn’t blame him for it” (Pearson, 1978, p. 168).

The design of Villa Mairea took just few months but Aalto made numerous changes. The early sketches of the house, with boldly projecting horizontal balconies, clearly suggest Frank Lloyd Wright’s Fallingwater. The first scheme, in early 1938, is for an L-Shaped building of two and three storeys, with mezzanine floors and stairs, balconies, a raised inner hall and a studio. Lower down is a curved, retracted basement floor. In the walled garden is a free-form swimming pool and sauna (Paatero, 1998, p. 48). Nevertheless, the Gullichsen rejected Aalto’s first proposal modeled on vernacular

farmhouses as being too conventional, and said, “we asked you to make something Finnish but in the spirit of today”(Porphyrios, 1982, p. 36).

The next scheme is dated April, 1938. The raised hall is absent and the studio space emerges from the unbroken third floor. The floor-level of the basement and main floors varies. The building includes a series of drawing rooms. Behind the swimming pool is a separate art gallery for Maire Gullichsen’s growing private collection. Building began on the basis of this scheme in the early summer of 1938, but Aalto made revisions in June, and this design became the final version. Here Aalto preserves the basic form of the building, but omits the basement floor and combines the basement rooms into one large space containing the art gallery. The sauna is on the third side of the courtyard, beyond the swimming pool (Paatero, 1998, p. 48). As Pearson explains, “what had originally been a respectable but unexciting functionalist summer house grew into a full-blown masterpiece of individualistic style, overflowing with innovative and original motifs” (Pearson, 1978, p. 170).

Villa Mairea stands alone on a hilltop near the old industrial estate of Noormarkku and the present headquarters of the A.Ahlstrom paper company. It is surrounded and isolated by an unbroken chain of coniferous trees. The frame of the building is part steel, part perforated brick, and its intermediate floors are thick slabs insulated by porous concrete. The facades are part wood-teak and Finnish pine and part slate and rough rendering. The focal point is a courtyard lawn with swimming pool, enclosed on three sides by family rooms, balconies, and sauna bath. The key feature of Villa Mairea’s plan is a single large living room of about 250 square meters for the Gullichsen family’s everyday use. A continuous room with partitions that can be

arranged freely was designed to form a single architectural entity, in which painting and everyday life can evolve in a more direct manner (Aalto, 1998, p. 31).

The house presents numerous detail improvisations extending from rustic solutions reminiscent of traditional farm constructions to sophisticated modernist ones. The courtyard seen from the southwest side juxtaposes the white modernist main house with the rustic covered walkway adjoining the sauna. Industrially manufactured blue tiles clad on the right side wall accentuate the rustic stair, which is made of manually dressed natural stones, leading to the roof terrace. Primitive and restless image of the entrance canopy serves as a striking contrast to the modernist façade behind. This juxtaposition of contrasting features of Villa Mairea are integrated to keep a sense of unity and wholeness in a subtle way.

One of the ways Aalto responded to the natural environment is based on the idea of the “Two Faces” of the traditional Finish dwelling (Pallasmaa, 1998, p.87). The first face is represented by a direct connection with the outdoors referring to a more southern tradition, whereas the other face, the winter face, is reflected in the furnishings of the inner rooms emphasizing warmth. One is the aesthetically direct contact with the world outside, the other winter face turns inward and is seen in the interior design which emphasizes the warmth of the inner rooms. Pallasmaa describes the idea of the outdoor-indoor relationship as follows: “. . . Aalto succeeded in combining the two seemingly contradictory and exclusive imageries of the externality of the object—implying monumentality, approach, authority and masculinity and the interior of the enclosed outdoor space implying arrival, protection, homeliness and feminine connotations” (ibid.).

Pallasmaa provides a summary description of Villa Mairea by explaining that the “Villa Mairea is archaic and modern, rustic and elegant, regional and universal at the same time. It refers simultaneously to the past and the future; it is abundant in its imagery and, consequently, provides ample soil for individual psychic attachment . . . Villa Mairea is a product of an exceptional friendship and interaction between the architect and his client, *an opus con amore*, as Aalto himself has confessed” (Pallasmaa, 1994, p. 1).

In summary, this chapter has provided a detailed description of Fallingwater and Villa Mairea and has also presented a justification for their selection. The following chapter presents an overview of architecture and dwelling and Harries’ theory of a non-arbitrary architecture. Since the case studies selected for this thesis are houses, the review on architecture and dwelling introduces a phenomenology of house and home from the perspectives of Harries as well as Martin Heidegger, Juhani Pallasmaa, Christian Norberg-Schulz, and others. The discussion of Harries’ natural symbols argues for a non-arbitrary architecture and presents a vocabulary of natural symbols that architects might use to create a genuine dwelling, which Harries says is “an interpretation of being-in-the-world that strengthens people’s natural sense of place” (Harries, 1993, p. 52).

## CHAPTER 2

### ARCHITECTURE, DWELLING AND KARSTEN HARRIES' NON-ARBITRARY ARCHITECTURE

As explained in chapter 1, Harries writes that a private house, as one aspect of man's being in the world, is gaining a growing significance within modern society in establishing a center for man. The house is a private retreat whereby orientation and identification are satisfied in relation to the physical and human environment. In our modern world, there is an increasing emphasis placed on the house, which is often discussed in terms that attribute to it the almost sacred quality of a church, which once possessed an exceptionally public importance as a community center (Harries, 1993, p. 57). Since the main focus of my research is to explore specific examples of how architecture interprets the private mode of man's being in the world—namely, in Wright's and Aalto's houses—this chapter first presents an overview of architecture and dwelling to elucidate the phenomenology of house and home. Then I discuss Harries' theory of a non-arbitrary architecture to indicate how the concept of natural symbols might enable architects to better interpret and design for human being-in-the-world.

#### **Dwelling, Home, and House**

In "Building Dwelling Thinking," the German philosopher Martin Heidegger (1981) traces the original meaning of the old English and High German word for building, "*bauen*," which means, "to dwell." Dwelling signifies the act of remaining and staying in place. Heidegger argues that "to be a human being means to be on the earth as

a mortal.” It means to dwell. The word *bauen*, however, also means “to cherish and protect, to preserve and care for” (ibid., p. 147). The central point of dwelling, however, “is *sparing and preserving*—caring for and protecting” (Seamon, 2000, p. 189). In explicating Heidegger’s argument of dwelling, Seamon writes that the quality of our dwelling is linked to the quality of our building, since an effective building arises from a genuine sense of sparing and preserving. Fulfillment of dwelling in part demands an attitude of sparing and preserving—i.e., “allowing our world to be and become. In this sense, a key to dwelling is letting ourselves and the world be, and this letting-be includes the ways we build, see, understand, and think” (ibid., p. 190).

Seamon further elaborates Heidegger’s argument of dwelling as the gathering of the *fourfold*—the earth, sky, man, and gods. He indicates that “dwelling is no mere extension of existential space or place”; rather, “it becomes itself the fundamental human activity, in the light of which both place and space find their first clarification” (ibid., p. 190). As Heidegger interprets dwelling, the built environment is crucial because it supports and reflects a person and group’s way of being-in-the-world (ibid.). Norberg-Schulz corroborates the same argument in his article, “Kahn, Heidegger and the Language of Architecture.” Norberg-Schulz writes that “in general, we may say in the existential structures, which are gathered by a place, constitute its *genius loci* and that gathering is taken care of by the language of architecture” (Norberg-Schulz, 1979, p. 2). Similarly Burnham, in “Being in Place,” writes that “Houses are pragmatic responses to being somewhere. They provide shelter from the elements, security for the body and possessions, and a physical expression of social identity. They are also one means by which people make connections to concepts of place, time, self” (Burnham, 1987, p. 32).



Pallasmaa in his "Notes on the Phenomenology of Home" argues that architects are concerned with "designing dwellings as architectural manifestations of space, structure and order, but fail to touch upon the more subtle, emotional, and diffuse aspects of home" (Pallasmaa, 1995, p. 131-132). He states that "dwelling has its psyche and soul in addition to its formal and quantifiable qualities." Speaking in terms of house, he argues that dwelling is the container, the shell for home: "Home is the expression of the dweller's personality and his unique patterns of life" (ibid.). Pallasmaa argues that the home is not, perhaps, at all a notion of architecture, but of psychology, psychoanalysis, and sociology. Home is not merely an object or a building, but a diffuse and complex condition, which integrates memories and images, desires and fears, the past and the present. A home is also a set of rituals, personal rhythms and routines of everyday life. And home cannot be produced at once; it has its time dimension and continuum, and it is a gradual product of the dweller's adaptation to the world" (ibid., p. 133).

Arguing that the current architectural avant-garde that "has deliberately rejected the notion of home and abandoned life entirely and changed into a pure architectural fabrication," Pallasmaa argues for authentic architecture, which he says, "is always about life" that makes man's existential experience as its prime subject matter of the art of building (ibid., p. 144-145). Architecture, he argues, connects us spatially with the places in which we dwell and temporally with the past and the future. The deeper significance of connectedness created by authentic architecture does "not lie in its connection of appearance to reality, but in its connection of people to their world. Authenticity is then, a way of being-in-the-world, a connectedness born of our acts of appropriation. It is a

spatio-temporal rootedness which enriches our world with experiential depth” (Dovey, 1983, p. 47).

Authentic architecture “facilitates reconciliation to resolve the conflicting notions of architecture and home,” whereas today’s avant-garde “attempts to impose by its arrogant and unchangeable order” (Pallasmaa, 1995, p. 143). An authentic architecture is based on images that are deeply rooted in our common memory—that is, in the phenomenologically authentic ground of architecture. In contrast, avant-garde architecture too often manipulates images, striking and fashionable, perhaps, but which do not incorporate the personal identity, memories and dreams of the inhabitant” (Ibid., p. 143-144). Pallasmaa highlights this fact by stating that architectural experience is related to “an act” rather than “an object or a visual or figural element” (ibid.). He writes that “the phenomenology of architecture is founded on verbs rather than nouns: the approach to the house, (not the façade); the act of entering, (not the door); the act of looking out of the window, (not the window itself); or the act of gathering around (rather than the hearth or the table as such, seem to trigger our strongest emotions” (ibid., p. 136).

Citing Yi-Fu Tuan, Czyzewski (1983) indicates that the return to home as Mother Earth’s womb is a recurring theme in dreams: “To build a house is to create an area of peace, calm and security, a replica of our own mother’s womb, where we can leave the world and listen to our own rhythm; it is to create a place of our very own, safe from danger. For once we have crossed the threshold and shut the door behind us, we can be as one with ourselves” (ibid., p. 73). Discussing the house as a vertical being, Czyzewski explains that “dreams about the verticality of a house are often thought of as progressing in three steps. In the first step, the foundation and the basement are equated with

primitive thought and the subconscious. In the second, the main body of the house is equated with physical reality. In the third, the attic is linked to memory and the mind. Furthermore, the house is thought of in three planes because of the polarity of up and down, and the need for a mediating plane to occur in the middle”(ibid., p. 74).

Czyzewki’s third image of house as a concentrated being implies center and periphery: “ The idea of center and periphery in spatial organization is perhaps universal. People everywhere tend to structure space- geographically and cosmologically with themselves at the center and with concentric zones (more or less well defined) of decreasing value beyond” (Jung, 1964, p. 266). The geometrical shape of a circle, as an ordering device, gives a sacred importance to the center. All secondary forces radiate from that point. Regarding the egocentric character of the core/periphery concept, Jung states that the circle” expresses the totality of the psyche in all its aspects, including the relationship between man and the whole of nature” (ibid.). The inner reality of a house, which is the vulnerable inner core, is protected by the periphery, which is the outer identity of the house presented to the world. Center and periphery can become a major ordering device in determining the inside/ outside relationship as it can be expressed in the house.

### **Karsten Harries’ Theory of Non-Arbitrary Architecture**

In “ Thoughts on a Non-Arbitrary Architecture,” Harries (1993) presents a language of natural symbols that architecture might use to create a more genuine dwelling, which, Harries says, is “ an interpretation of being-in-the-world that strengthens people’s natural sense of place” (ibid., p. 52). These natural symbols “can be derived

simply from an analysis of people's being-in-the-world" without any reference to "a particular culture or region" (ibid., p. 53). This idea of retrieving natural symbols from the everyday life of people might enable architects to create buildings that "are experienced as necessary rather than arbitrary" (ibid., p. 54).

In his article, Harries focuses on criticizing the problems of arbitrary architecture while attempting to introduce a solution for a non-arbitrary architecture. Referring to Heidegger's concept of "ready-to-hand" (Heidegger, 1962, p. 95), which is our typical unselfconscious encounter with things, Harries discusses the role of the human body as a basic measuring unit of lived space. The body provides a natural sense of what is close and far, up and down, left and right, front and back. Harries calls this the "*body matrix*" (Harries, 1997, p. 180). Moreover, vertical and horizontal, inside and outside, dark and light, center and periphery can convey different meanings. Harries concludes that all these themes are natural symbols because they are inseparable from our being-in-the-world. The application of natural symbols in the design of a building can potentially "communicate a particular ideal of being-in-the-world" (Harries, 1993, p. 54).

Harries says it is our conventional aesthetic, functional and historical approaches to architectural design that perpetuate the problem of arbitrariness. All three approaches are preoccupied with the pursuit of inventing meanings beyond what everyday necessity dictates. Harries' call for a non-arbitrary architecture by the use of natural symbols suggests an architecture of universal expression. It is also possible to underscore that this approach is potentially a timeless expression as well and not necessarily tied to a certain historical period. Nevertheless it has to be made clear here that, even though culture appropriates these symbols in one way or another, it would still be always possible to

identify the underlying natural symbols because natural symbols never change, while culture does change through the course of time.

At one point, Harries says that natural symbols are not tied to a particular culture or region, while at another point he explains that the “less nature and culture determine what we have to be, the greater our freedom, the greater also the dread of arbitrariness” (ibid. p. 43). This point makes it clear that both culture and nature are significant for a non-arbitrary architecture. Different cultures appropriate natural symbols differently, but the expression of natural symbols always transcends the private and social level of experience to assume a universal level of meaning (Thiis-Evensen, 1987, p. 27). This makes a connection with Harries’ explanation of being-in-the-world, which is “essentially both: being a self and being with others” (Harries, 1993, p. 57). This means that the architect is responsible for deriving natural symbols not only from the everyday life of the individual alone but also from the everyday life of the community. The term “being with others” (ibid.) is inclusive of culture. The domains of “being a self and being with others” (ibid.), respectively, imply the private and public realms. As a result, culture becomes part and parcel of the design solution for avoiding the problem of arbitrariness.

Harries emphasizes that the task of recovering natural symbols will not be easy for architects. Pursuing the trend of borrowing symbols and motifs of the past could be a much easier approach as has been seen in the recent “Postmodernist” movement. However, to eliminate the whole notion of arbitrariness, one needs to understand natural symbols and where to look for them. Secondly, in order to retrieve these symbols, the architect needs to closely observe and listen to the everyday world of people as they

experience that world because things “do not march past us, strange and meaningless . . . but speak to us directly” (Schopenhauer, 1993, p. 54).

The need for originality is another crucial question raised by Harries, who suggests that an architect ought “to relate his structure to precursor buildings while yet attempting to make an original contribution” (Harries, 1993, p. 47). By doing so “the architect adds a link to what is a continuing chain” (ibid.). In short, non-arbitrariness is a quest for some form of originality. If the language of natural symbols is used as a reservoir for architectural expression instead of mere imitation of the past, then the task of originality won't be insurmountable. As long as a close observation is made into nature and the phenomena of peoples' everyday life, then a continuous resource of symbols for architectural expression will abound. The problem of arbitrariness, in other words, lies with where we look and search for meaning. An architectural aesthetic with elements drawn from the past or an architecture that pays no heed to history or culture at all can not lead to an architecture that carries conviction (ibid., p. 46).

### **A Language of Space**

In later his work, Harries (1988) attempts to develop a natural language of space. He presents architecture as a rich field for exploring a natural language. Our existence as physical beings living on the earth and beneath the sky is the key to this language. Referring to the human body as “a measure of all things,” he states that the body gives us an understanding of the physical environment in terms of up and down, right and left, front and back—what he called the “body matrix” (ibid., p. 180). This language of space, Harries argues, can be called natural in that it has its foundation in the nature of human

beings in their experiences of lying down and getting up, of climbing and descending, of lifting, of raising and supporting. A language of space would explore these relationship of vertical and horizontal, light and darkness, inside and outside, center and periphery and so forth (ibid., p. 180-200). The meaning spoken by these elements is basically a universal expression, since it is related to the very phenomena of man's being-in-the-world. In this sense this bodily-based symbolism has significance beyond a particular tradition, place and historical time.

One key theme that Harries explores is the conflicting meanings of expression between vertical and horizontal. Harries says that the horizontal ties us to the earth as when we are in state of sleep or death. Its aspect of hinting at surrender, sleep, rest, death and disintegration can remind us of our mortality. Being parallel to the earth also suggests comfort and an indefinite beyond—a boundless space full of promise and unknown opportunity. In contrast, Harries speaks of the vertical as assertive. Effort is needed to stand upright. The vertical gathers the scattering power of open space and soars upward suggesting immortality. It establishes a center by connecting heaven and earth with a gathering axis. It places our relationship to the spiritual. In this instance, the relationship between vertical and horizontal refers to up and down (ibid., p. 181-183).

Wright's houses are used by Harries to describe the effect of horizontality, while examples ranging from the Tower of Babel, Jacobs' Ladder, Egyptian pyramids and modern skyscrapers are drawn upon to illustrate verticality. Further, Harries says the heavy entablature and assertive columns of Greek temples are the purest expression of the vertical and horizontal brought into balance (ibid., p. 180-184).

One might argue that if the emphasis given to verticality expresses a defiance of death and our relationship to the spiritual, then accentuated horizontality, on the other hand, expresses mortality and our limited boundness to this earth. In this sense, the architecture of house can potentially give interpretation to human life in the here and now. On the other hand, pointing towards the sky and heavens, where deities reside, is an expression of sacred architecture and the power of verticality. In Gothic cathedrals, therefore, verticality takes apparent victory over horizontality, while Greek temples are much more balanced between verticals and horizontals due to “the contrast between the heaviness of entablatures and the assertiveness of supporting columns” (ibid., p. 189). Therefore, Harries concludes that the experience of verticals and horizontals is profoundly ambivalent and “inseparable from our being-in-the-world” (ibid.).

Harries argues that “our being on the earth and beneath the sky, belonging to both, is also to say that we belong to light and darkness” (ibid., p. 190). He respectively relates the rising sun and east with light, and setting sun and west with dark. He comments that the natural language of light and dark are no longer alive for us, as today there is little emphasis given to a building orientation in relation to the path of the sun as was the case in earlier times, as with Egyptian temples or medieval cathedrals. He indicates that there is much to be learned by studying the changing quality of light through the course of the day (ibid.). For example, light tends to open up space; because of our natural predilection to see without being seen, we tend to choose darker places for hiding and for refuge. However, Harries’ attempt to suggest that “the natural language of light and dark is no longer alive for us” (ibid.) is inconclusive because he seems to consider only the direct illumination of interior spaces by sunlight, but he doesn’t examine the possible natural



symbolism that could be created by degree of darkness and brightness inside an architectural space.

Harries also describes the natural symbols of inside and outside. He argues that the very need to build, which is an act of creating an inside from an outside, is founded on the deficiency of not feeling at home in the world. The age-old need to seek refuge in dark interiors or enclosed interiors is tied to the need for privacy—the need to be left alone and to avoid the look of others. Explaining the ambivalence of inside and outside, Harries argues that, just as there is something inhuman about the openness of glass architecture that threatens to deprive us of a private sphere, there is also something equally inhuman in an architecture that deprives us of a sense of outsideness (*ibid.*, p. 192-193).

Harries argues that, as the experience of vertical and horizontal is profoundly ambivalent, so is our experience of inside and outside. Windows and doors are mentioned to describe the ambivalent meaning of inside and outside. The presence of a window enables one to look out from an inside, private and intimate realm to the wider outside that hints of freedom. It would be appropriate here to see the effect of light and darkness on inside and outside. If light is related to the wider outside, then dark is apparently connected to the enclosed inside. While the window shows the inside to the outside, the door allows the light and openness of the outside into the inside. As a result, the inside can promise both shelter and suffocating darkness (*ibid.*, p. 196).

Last, Harries discusses the natural symbol of center and periphery (*ibid.*, p. 198). The need of human beings to seek refuge within some enclosed space is not sufficient unto itself. The created inside needs to have a symbolic significance of a center, since the

need for a center is inseparable from our sense of home and is bound up with the requirement of human dwelling. Harries argues that every enclosed area or volume implies a center. This suggests that center and periphery are inseparable.

Harries emphasizes the gathering power of the center as a hinge holding together heaven and earth like the ladder of Jacob's dream or the Tower of Babel. These architectural images serve as an *axis mundi*, and coincide with the natural symbolism of the vertical discussed above. In this instance, center and vertical seem to be intertwined in their symbolic significance. In short, natural symbols, through their ambivalence of meaning, can interpenetrate and reverse in many different ways to convey a universal level of architectural experience.

Harries' discussion of natural symbols and a non-arbitrary architecture "leaves us with several questions that relate to the considerable gap between the vocabulary of natural symbols and architecture" (Lin, 1991, p. 13). For instance, "what does a non-arbitrary architecture speaking with natural symbols look like? Are there any modern buildings that might be related to a non-arbitrary architecture? Is there any way to bridge the gap between meaning and material expression and thereby achieve a non-arbitrary architecture" (ibid.)? In this regard, Thiis-Evensen's architectural archetypes hold considerable value, and in the next chapter I review his theory in detail.

## CHAPTER 3

### THIIS-EVENSEN'S THEORY OF ARCHITECTURAL ARCHETYPES

In chapter 2, I have discussed Harries' theory of natural symbols that will be used as the first interpretative tool to analyze Fallingwater and Villa Mairea. In this chapter, I present Thiis-Evensen's theory of architectural archetypes, which will be used as the second interpretative tool to better understand the two houses. In "*Archetypes in Architecture* Thiis-Evensen (1987) attempts to establish a theory based on the entire phenomenon of architecture itself. He indicates that the contrast between the two current prevalent approaches—the rational technology verse the subjective creativity has caused a crisis in architects' and users' relationship to architecture. Thiis-Evensen raises the need that all human beings have for something stable and universal—the need for personal and emotional identification (ibid., 1987, p. 8).

Thiis-Evensen attempts to classify a set of architectural archetypes, that "contribute to the understanding of the universality of architectural expression" (ibid., p. 8). He seeks for a common language of architecture that we can immediately understand, regardless of individual or cultural differences. His focus is how the archetypes affect us psychologically without the influence of project, time and region (ibid., p. 8-9). He says that "behind the plurality of the many forms in history lies a simple set of archetypes which he calls "*the grammar of architecture*" (ibid., p. 17).

Thiis-Evensen argues that "one need not be acquainted with the building's function, its meaning, or the distribution of rooms in order to react" (ibid., p. 15). In this way, an overall impression of the spirit of the building, which need not correspond to the

building's function, can be quickly apprehended, particularly in terms of feelings and emotions (ibid.). In this case architecture is related to our feelings.

Thiis-Evensen argues that the universal expression of architecture is made possible by constructing a grammar comprising the most basic elements of architecture, which he says are the *floor*, the *wall* and the *roof*. These archetypes, says Thiis-Evensen, though they do different things, they accomplish fundamentally similar ends—i.e., they all create an inside in the midst of outside. The floor, does this through above and beneath; the wall, through within and around; and the roof, through under and over. These delimiting elements embody a fundamental meaning and thereby a fundamental expressive potential, in that we unselfconsciously evaluate floor, wall, and roof in relation to their principal role of protecting an interior space from an exterior space, thus providing shelter—a necessity for human life and dwelling. Thiis-Evensen concludes that "each work of architecture must find its place somewhere between complete closure and complete openness" (ibid., p. 21).

Thiis-Evensen presents three essential qualitative concepts essential to the description of how the three delimiting elements generate inside and outside. These concepts are *motion*, *weight*, and *substance*, and he claims that they can be utilized in any architectural description that attempts to suggest a building reality. *Motion* describes the dynamic nature of the elements, whether they expand, contract or are in balance. In turn, *weight* describes the heaviness of the elements and is related to gravity or levity. Finally, *substance* is related to the materiality of the elements, whether they are soft, hard, coarse, fine, warm or cool. These qualities can be described as the existential expression of

architecture, which are at the base of symbolic meanings with their stylistic and regional variations (ibid., p. 21-23).

Whereas Harries identified “natural symbols” like inside-outside, vertical-horizontal, up-down, dark-light, and center-periphery and so forth. Thiis-Evensen more precisely considers how an individual experiences those architectural expressions. One of the links between Thiis-Evensen’s and Harries’ argument is the reference that both writers make to the human body. Thiis-Evensen argues that the commonalities of our architectural experience occur when our physical experience is transferred or projected to what we see (ibid., p . 9). Similarly, Harries states that the human body is a measure of all things and gives us understanding of the physical environment.

Juhani Pallasmaa’s (1999) discussion of haptic sensory experience further corroborates Harries’ body matrix and Thiis-Evensen’s understanding of architecture as an experiential phenomenon. Haptic experience provides one with a means of psychological orientation, thus establishing a relation between the body and the environment. Pallasmaa’s discussion of human sensory experience plays a crucial part in illuminating how the information of architectural expression is channeled to us to become sensual data which is processed into natural symbols and a sense of motion, weight, and substance.

All three writers highlight the connection between architecture and sensual experience, but Thiis-Evensen goes further in that he suggests how particular architectural elements look and reflect specific sensual and bodily experiences.

## The Floor

In his book, Thiis-Evensen (1987) begins his discussion by asking “what the floor does?” (ibid., p. 36) He identifies three main functions of the floor in relation to our actions. The floor *directs* us from one place to another, it *delimits* a space from its surroundings, and it *supports* us by providing a firm footing. Support is the most important of the three floor themes, says Thiis-Evensen, because we always assume the taken-for granted solidity of the ground on which we find ourselves. Thiis-Evensen explores the expressive potential of the built floor in relation to our shared experiences with nature’s floor and how do these experiences determine our impression of the floor in architectural terms (ibid, p. 36).

He describes the vertical relation of the floor to the space beneath through its qualities of motion, weight, and substance. The *supporting* theme deals with the vertical dimension of the floor, while *directional* and *delimiting* themes deal with the horizontal characteristic—that is, its relation to the surrounding exterior. The directing and delimiting floors largely involve motion and substance, while the supporting floor mostly involves weight and gives us a sense of security by the firm taken-for granted footing it provides. Thiis-Evensen discusses nature’s floor in terms of surface and mass. The surface is the plane on which we rest and move, and the mass is the underlying bulk of the ground. The expression of nature’s floor is determined by whether the surface appears to be independent of, dependent upon, or part of the underlying mass (ibid., p. 37-41).

In turn, the directional floor relates to the quality of our forward movements in varying ways, it may invite us to go up or down, straight ahead or in curves, to walk quickly or slowly: “The directional theme concerns the way in which the form of the

floor emphasizes certain motions, connecting one place to another” (ibid., p. 43). The motion may be generated either by the floor’s surface, by its form, or by paths which cross the space. The motion generated by a floor’s surface is often dependent on typical patterns created by different finishing materials. When the form of the floor slopes, undulates or shifts level through the use of steps and landings, motion is generated. A floor creates a path when an independent pattern emerges as a figure against the background of the rest of the space. The delimiting floor indicates the way in which the floor may create a stationary situation by keeping us either in a centralized position or containing us within a boundary (ibid., p. 43-49).

Next, Thiis-Evensen identifies six kinds of supporting floors based on the relation between mass and surface (ibid., p. 51): (1) the *attached floor*, (2) the *detached floor*, (3) the *sunken floor*, (4) the *rising floor*, (5) the *open floor* and (6) the *directional floor*. The *attached floor* emphasizes our conception of the ground as something firm and immovable and conveys the feeling of a solid footing. In this situation, the floor surface may seem heavy and rest solidly either on or below the ground surface. Moreover, the floor should resemble the ground. Thiis-Evensen mentions stone as a solid and dependable material for the expression of attached floor.

In contrast, the surface of a *detached floor* “is divorced from the ground” (ibid., p. 57). The floor level may either be raised physically above the ground or lie lightly on the ground. Detachment typically involves freedom and dynamism. In contrast to both the attached and the detached floor, the open floor involves a situation whereby the quality of downward movement is only visual but not physical (ibid., p. 63). This is because the open floor physically remains solid and on the same plane. The optical effect of an open

floor is brought about by the use of specific materials and patterns which lend a special depth effect to the floor such as transparency, mirroring, reflection and layering. Its effect is in the conflict between familiar pattern of possible motion and the possibility of falling, which in principle is threatening (ibid., p. 63-68).

In contrast to the open floor, a downward motion is a physical reality in the sunken floor (ibid., p. 75). In this case, the surface is below the mass. Thiis-Evensen relates the sunken floor penetrating into the ground as “an encounter with earth’s primeval forces—with the rough and natural, with death, water and fire” (ibid., p. 77).

The last type of supporting floor discussed is *directional floor* (ibid., p. 87) which works to lead us and is of three types, the *path*, the *bridge*, and the *stairs*. The Path accents a goal. The Bridge carries us over an obstacle and gathers and unites separate routes by occupying the empty space it spans. Stairs link what is below and above. Stairs “concentrate a conflict between potential humility and potential exaltation” (ibid., p. 89). Thiis-Evensen concludes that path is guided by goal, bridge by conquering goal, and stairs by finding goal—either humbling or uplifting (ibid.).

## **The Wall**

We have seen that the floor is basically associated with the ground (the earth) and establishes a vertical relationship between what is beneath and what is above. In contrast, the wall primarily establishes a *horizontal* relationship between the inside and the outside. Thiis-Evensen argues that “in architecture the main purpose of the wall is to delimit a space and to support the roof” (ibid., p. 116). The wall defines territories by dividing one space into two spaces (ibid.). In terms of inside and outside relationship, the



wall determines the relative strength of inside-outside relationship and degrees of openness and closure. The relative strength of inside and outside space as determined by the wall is understood by Thiis-Evensen as “the degree of penetration” (ibid., p. 117). Thiis-Evensen says that the expression of penetration is dependent on the relationship among the wall’s *breadth*, *height*, and *depth* (ibid.).

By *breadth*, Thiis-Evensen refers to the horizontal sense of the wall as expressed through “a dynamic relationship between a central field and two peripheral fields,” which Thiis-Evensen calls the “wall’s *vertical tripartition*” (ibid., p. 119). Based on this tripartition, he develops four fundamentally different motifs—what he calls, *breadth* motif, the *split* motif, the *right* motif and the *left* motif (ibid., p. 123). Each motif helps either to accentuate or to weaken the basic meaning of the walls’ major expression. In the *breadth* motif, “the middle section dominates. This motif emphasizes the public character of a building: communication between inside and outside is increased” (ibid., p. 123-125). The *breadth* motif allows the building to expand outwards either by pushing the corners to the side, or by springing out in order to meet us. The opposite is true of the *split* motif where “corners dominate and the middle open field is pressed together. This motif points toward an increasing closure” (ibid., p. 125). Yet again, in the side motifs of *right* and *left*, “the open middle section is located either to the right or to the left” (ibid.). The *right* and *left* motifs generate asymmetrical façade placement, which elicits a more private character than does a symmetrical wall arrangement.

In contrast to *breadth*, a walls’ *height* theme is concerned with the vertical sense of the building, the “walls relationship to up and down” (ibid., p. 129). Thiis-Evensen divides the wall into three field of energy, which he calls as the *horizontal tripartition*.

This-Evensen then identifies four height motifs which he refers as the *rising* motif, the *sinking* motif, the *split* motif, and the *opening* motif (ibid., p. 133). In the rising motif, “the middle field is pushed upward in relation to the wall’s centerline; the lower field becomes the largest and the upper narrowest.” This motif makes the wall to seem “well anchored and heavy while at the same time upright and free. It gives an impression of both secure solidity and proud stature” (ibid.). In contrast is the sinking motif where the middle field is below the centerline. The upper field becomes dominant while the lower field is the weakest. Typically, the sinking motif gives a sense of collapse and threat (ibid., p. 135).

The split and opening motifs arise by the changing strength of the middle field. In a split motif the middle section seems to be pressed from both above and below, the lower field seems to rise, while the upper field seems to sink. The split motif results in a closed façade that terminates motion. In the open motif the middle field is broadened and made more dominating in relation to the narrow fields above and below. The resulting expression is both rising and proud, but also open and accessible for our penetration at the ground level (ibid., p. 135-137).

This-Evensen uses a large portion of his book to present the depth theme. He argues that depth is the most important theme because it directly contributes to or affects the sense of inside and outside. To explain the expressiveness of depth and the relationship between the spaces in front of and behind the wall, he presents three key themes—*main form*, *building system*, and *openings* (ibid., p.140). Each theme represents a principal set of motifs thus the main form relates to wall qualities like horizontality, verticality, flatness, convexity, concavity, and uprightness influence the impression of the

relative strength between inside and outside (ibid., p. 143-152). In turn, the building system deals with how wall forms are constructed, that is, if they are massive, skeletal or some combination that affects our impression of the transition between inside and outside (ibid., p. 153-250).

Last, Thiis-Evensen discusses openings, which he differentiates by door and window, each of which affects our impression of the inside-outside relationship differently. Though both the door and window are perceived as openings in the wall, their experiential effect works differently: doors relate outside into inside—penetration of outside in. In contrast, windows relate inside to outside—penetration of inside out. In this sense, doors often have symbolic meaning as it provides a bodily passage from the outside to the inside.

## **The Roof**

Whereas the wall is related to what is within and around, the roof is related to what is under and over, which is the sky. Thiis-Evensen begins his discussion by asking, what the roof does in terms of the three existential expressions of motion, weight and substance (ibid., p. 301). In terms of the inside-outside relationship “the roof protects an interior space against an exterior space, a space that is both over and around it” (ibid.). Thiis-Evensen relates the roof to the sky—to the vertical dimension and its surrounding, which is the horizontal domain. In the vertical dimension, the roof form is able to receive the sky, resist the sky, or balance the sky. In the horizontal dimension, the roof form is able to close the space by excluding the surroundings or open the space to its longer context (ibid.).

Making a closer examination of architectural history, Thiis-Evensen identifies five roof themes: the *dome*, the *barrel vault*, the *gable* roof, the *shed* roof, and the *flat* roof. Each of these themes conveys specific expressions with regard to motion, weight, and substance, which in turn influence our experience of the space beneath and around. (ibid., p.303).

The dome, being a rotated arch around a vertical axis, is commonly associated with the idea of the cosmos—a miniature of the universe unto itself. The dome gives a sheltering feeling of safety within an encompassing and protective universal space. It is also centralized. Thiis-Evensen asserts that the focus to the center of the space potentially involves a calming influence. Therefore, the dome indicates the very essence of what we mean by being inside, which in turn is the prerequisite for all security and life. In contrast to the centrality of dome, the primary effect of the barrel vault is one of emphasized horizontal motion while at the same time the eye is directed upwards (ibid., p. 305-332).

Next, Thiis-Evensen discusses the gable roof pointing out that “Palladio considered that gable roof as one of the original architectural elements.” Supporting Palladio Thiis-Evensen says that the gable roof is “a primeval motif of survival from the first primitive house” (ibid., p. 333). In this sense, the gable roof opens the connection between outside and inside and asserts an upward motion as it rises toward the ridgeline. Therefore, the gable roof expands vertically at its apex, expands horizontally in its lengthwise direction, and sinks diagonally along its surfaces (ibid.).

Unlike the dome, barrel vault, gable roof, and the flat roof, the shed roof “creates an asymmetric (unbalanced) space . . . Lengthwise the diagonal will accent the roof’s tension between rising and sinking, between vertical and horizontal. Transversely the

shed roof will both open and close, both rise towards the exterior space and sink towards the ground” (ibid., p. 363). Thiis-Evensen claims that “the shed roof’s importance as a transitional form between opening and closing made it particularly suitable as an entrance motif” (ibid.), in this way it mediates the transition between inside and outside. This means “the roof opens towards the visitor, to receive and guide him in” (ibid., p.365).

The last of the five roof themes is the flat roof. Thiis-Evensen argues that a dome or even a shed roof is self-sufficient, a flat roof, in contrast, “must be inhabited in order to assert itself at all . . . Seen from the inside the flat roof or ceiling will direct the space equally in all directions. Motion is spread horizontally, and in the relationship of above and below the flat roof is like a rigid lid. Consequently, the flat roof is basically unaffected by the environment and in principle without expression” (ibid., p. 371).

In summary, the three architectural archetypes of floor, wall, roof create an inside in the midst of an outside—the floor; through above and beneath; the wall, through within and around; the roof; through under and over” (Seamon, 1991, p. 4). Even though their function and expression is different, these three architectural archetypes all share a common function of delimiting space. In turn, the description of how the three delimiting elements close or open between inside and outside is explored through the three qualitative concepts of motion, weight and substance, which Thiis-Evensen calls “the existential expressions of architecture” (Thiis-Evensen, 1987, p. 21).

Thiis-Evensen’s pioneering work of architectural archetypes seems to provide a solution to some of the crucial questions raised regarding the possibility of bridging the gap between meaning and architecture and achieving a non-arbitrary architecture by the use of natural symbols (Lin, 1991). In addition, his innovative introduction of the three

existential qualities—motion, weight, and substance—gives a picture of what a non-arbitrary architecture of natural symbols looks like. Thiiis-Evensen’s attempt to create a grammar of architecture based on the entire phenomena of architecture itself is not arbitrary because he is investigating the archetypes in terms of the inside and outside relationship, which Harries emphasizes as one of his natural symbols that generates a non-arbitrary architecture (Seamon, 1991, p. 4).

In the next chapter, I present my own personal interpretation of the two houses from the perspective of Harries’ theory of natural symbols.

## CHAPTER 4

### FALLINGWATER AND VILLA MAIREA AS THEY EXPRESS THE NATURAL SYMBOL OF INSIDE AND OUTSIDE

In chapter 2, I have discussed Harries' theory of natural symbols in detail to establish a theoretical framework that can be used as an interpretative tool to analyze Wright's Fallingwater and Aalto's Villa Mairea. Specifically, *inside* and *outside*, *vertical* and *horizontal*, *up* and *down*, *light* and *dark*, and *center* and *periphery* are the five pairs of natural symbols that were discussed in that chapter and that will now be used to interpret the two houses from Harries' perspective. In this chapter, I present an interpretation of the two houses using the first natural symbol of *inside* and *outside*. Then, in the next chapter, I present an interpretation of the two houses using the remaining four natural symbols—*vertical* and *horizontal*, *up* and *down*, *light* and *dark*, and *center* and *periphery*.

The process of interpreting the two houses in these two chapters based on Harries' theory of natural symbols is conducted by a method of comparison and contrast. The interpretation is also supported by graphic analysis that illustrates the process by which the natural symbols find architectural expression in the two buildings. This interpretation helps to better understand the two houses by explicating the several underlying natural symbols engendered in their design. It is also the objective of this research to demonstrate that the architecture of Fallingwater and Villa Mairea is non-arbitrary.

Harries' natural symbols help us to identify the experiential similarities between the two houses as well. First, as the two houses are interpreted through Harries' natural symbols, it becomes apparent that the experiential similarities of the two houses are based

on the contrasts achieved between the oppositional qualities of the natural symbols discussed. As Jacobson (1990) explains, “ the contrasts themselves are the very basis of architectural experience, for the experience of a quality is sharpened and made tangible by connection with its bipolar opposite” (p. 5). Second , the way the contrasting pairs of natural symbols are linked by a third element for smooth and gradual transition at many levels of scale in the two houses establishes another experiential similarity. We shall find that, while both houses exhibit resemblances in their inside/outside, vertical/horizontal, and light/dark expressions, the center /periphery theme seems to be more clearly and strongly expressed in Fallingwater than Villa Mairea.

### **Inside and Outside**

The creation of an inside automatically shapes an outside. As a spatial expression, inside and outside are contrasting polarities. Inside establishes physical security and safety from nature’s elements and society’s demands and also facilitates a sense of identity for the person and group inside. One of architecture’s primary roles can be said to be to create an inside and outside, and to link the two through a designed transition. Wright and Aalto have created a strong sense of insideness in their respective houses, while at the same time emphasizing continuity in the inside-outside relationship. Wright’s and Aalto’s approach to creating a strong link and continuity between inside and outside involves multifaceted design solutions. Here, Wright’s and Aalto’s design approach in relating the inside and outside of the two houses is analyzed in terms of three generalized design themes, namely (a) *in-betweenness*, (b) *interpenetration* and (c) *intermingling*.



### a. In-Betweenness

Jacobson writes that the “feeling of [insiderness] is increased by opacity” (ibid., p. 13). Accordingly, it can be said that the strong sense of insiderness in Fallingwater and Villa Mairea is heightened by the opacity created by Fallingwater’s roughly dressed stone masonry walls and Mairea’s white painted solid walls. The enclosure and security achieved through these architectural features impart a strong sense of refuge in both houses. The degree of exposure and enclosure directly influences the sense of in-ness and out-ness. As Figure 4.1 and 4.2 suggest, tempered areas created by enclosure and darkness increase the element of refuge, while exposed areas created by openness and light hint at a link and an unimpeded view to the outside.

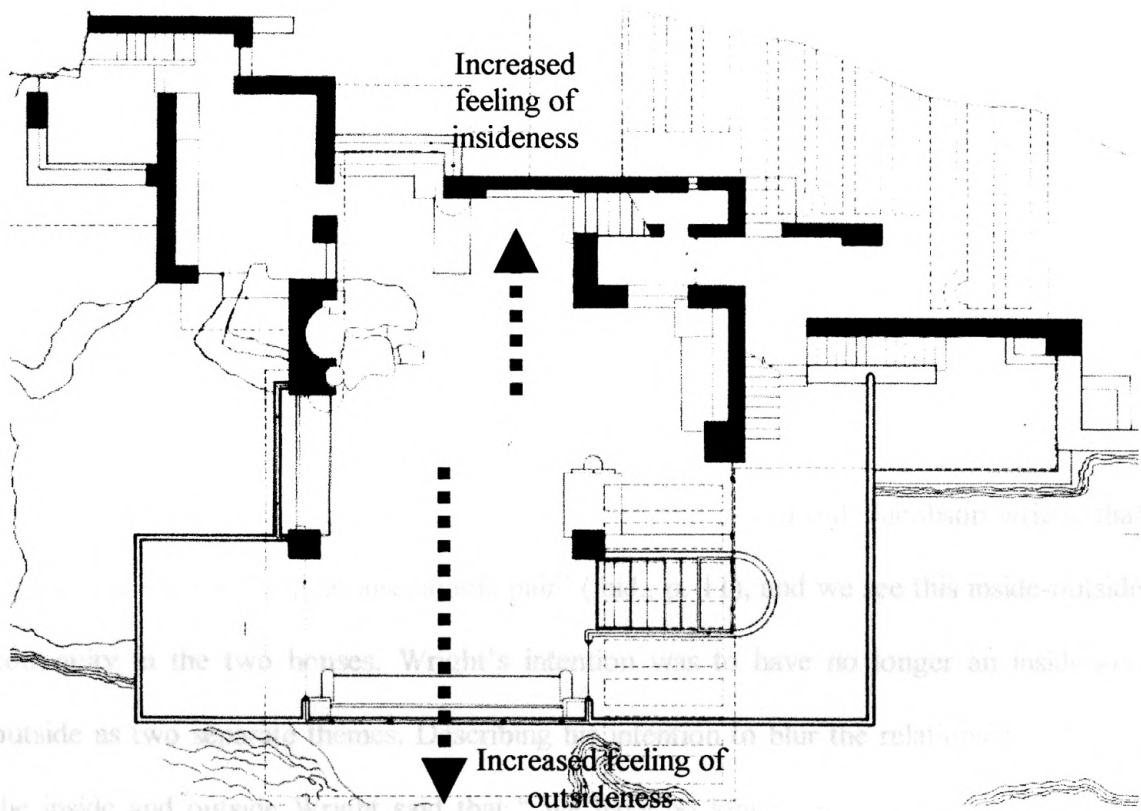


Figure 4.1. An Increased sense of insiderness in Fallingwater is created by the opacity of the masonry walls at the north side while an increased feeling of outsiderness is created by the transparency of glass windows on the south, southwest and southeast side. (Kaufmann, 1986,p. 73).

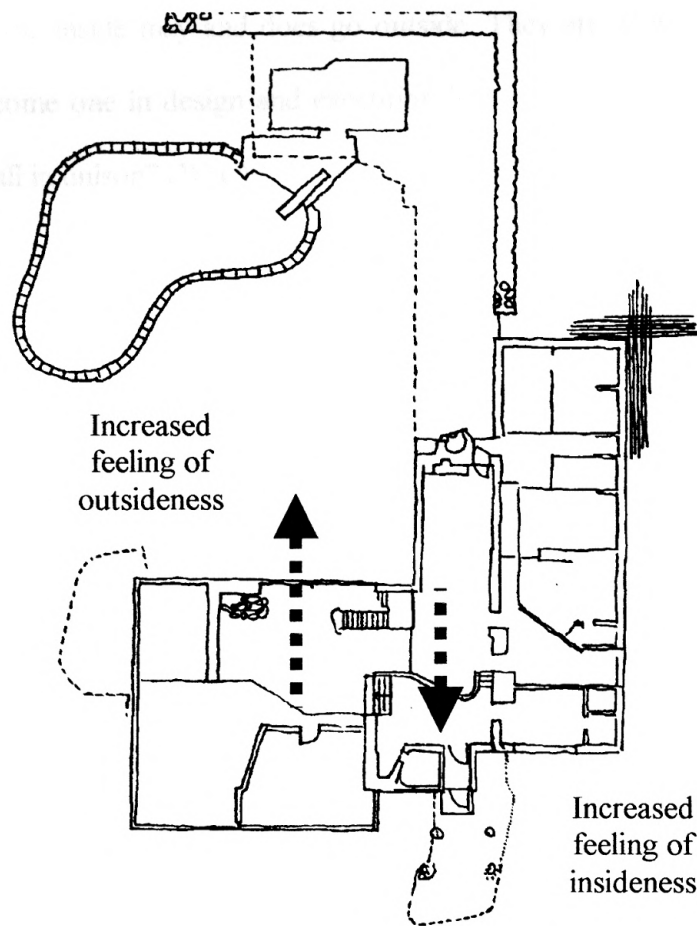


Figure 4.2. An Increased sense of insidiness in Mairea is created by the opacity of the solid walls at the main entrance and the fireplace while an increased feeling of outsidersness is created by the transparency of the continuous glass windows on the south, south west, north, and north west windows. (Reproduced from Pallasmaa, 1998, p. 146).

While creating a definite sense of insidiness and outsidersness in the two houses, both architects have emphasized a strong link between in and out. Jacobson writes, that “inside and outside form an inseparable pair” (ibid., p. 11), and we see this inside-outside continuity in the two houses. Wright’s intention was to have no longer an inside and outside as two separate themes. Describing his intention to blur the relationship between the inside and outside Wright said that “we have no longer an outside as outside. We have no longer an outside and an inside as two separate things. Now the outside may

come inside and the inside may and does go outside. They are of each other. Form and function thus become one in design and execution if the nature of materials and method and purpose are all in unison” (Wright, 1954, p. 50).

Accordingly, Wright appears to be deliberate in blurring the boundary between the inside and outside of Fallingwater. One of his design approaches in creating continuity from exterior to interior and vice versa is the concept of *in-betweenness* which ensures a smooth transition from one domain to the other. In-betweenness is a place neither in nor out. But it is a threshold whereby a strong dialogue between the inside and outside takes place. Porches, patios, arcades, deep doorways and roof overhangs are a few examples of such in-between places in Fallingwater.

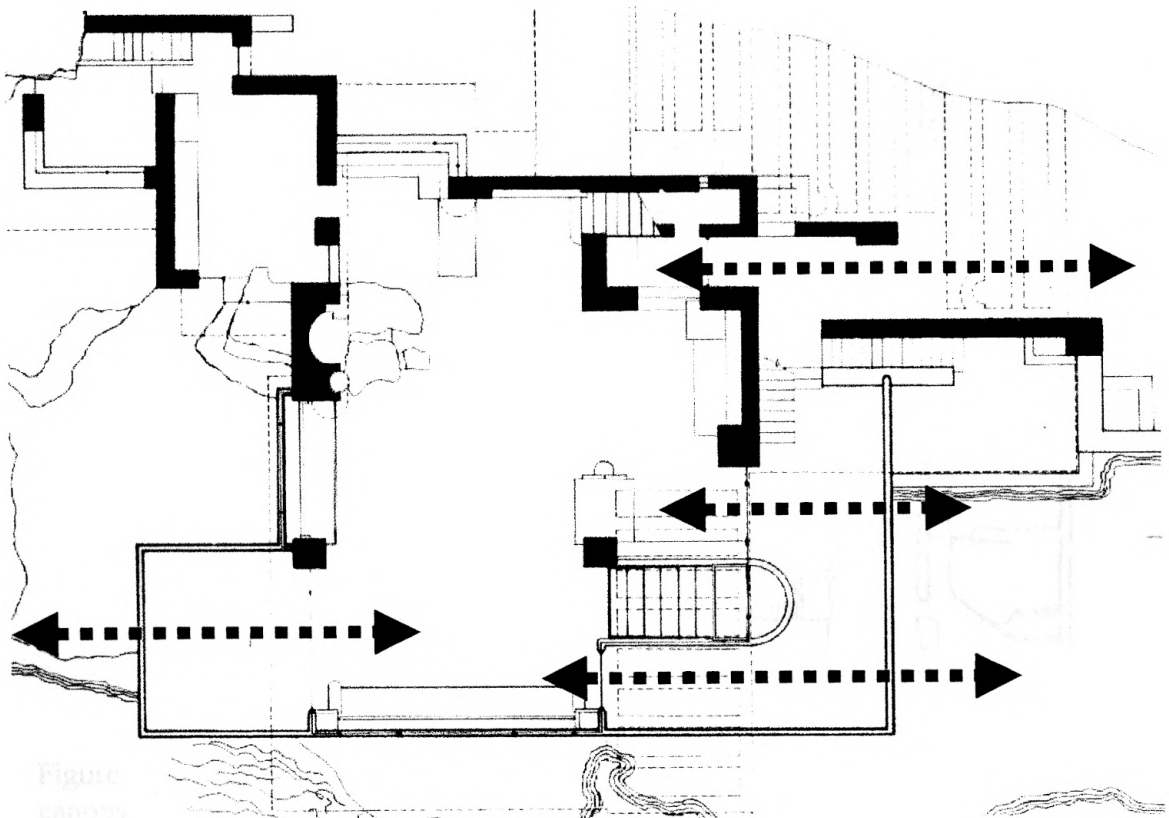


Figure 4.3. The deep entryway and balconies illustrate in-between places in Fallingwater. (Kaufmann, 1986, p. 73).

As Figure 4.3 suggests, the deep doorway located at the east main entrance is one in-between place in Fallingwater. The projecting terraces, which in most cases appear as extensions of the rooms through transparent glass windows, are neither in nor out. The depth created by the terraces and the overhanging volumes from above give the balconies a quality of an outdoor room. As in-between spaces, they become thresholds mediating the contrasting domains of insiderness and outsiderness. The trellis-like openings that project in front of the guest bedroom to the south and the trellis that stretches out to tie the building with the north driveway are other important in-between elements linking the inside with the outside.

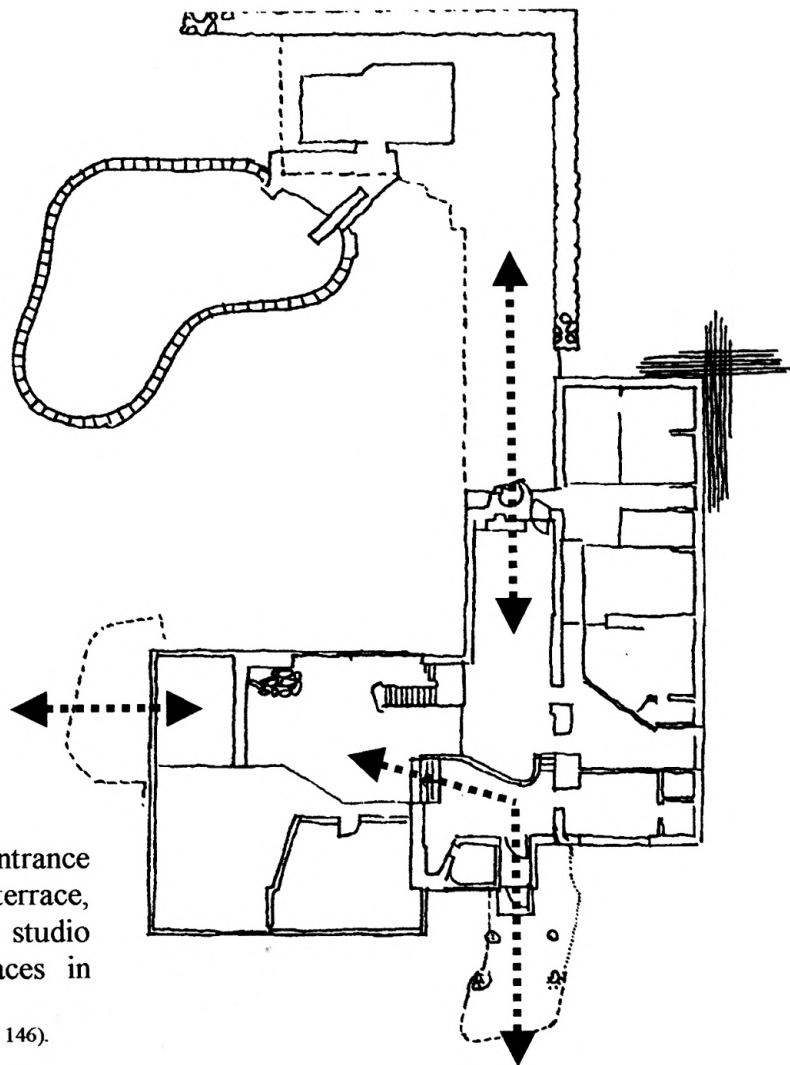


Figure 4.4. The entrance canopy, the covered terrace, terrace beneath the studio illustrate in-between places in Villa Mairea.  
(Reproduced from Pallasmaa, 1998, p. 146).

As figure 4.4 suggests, the in-between places in Villa Mairea include the projecting deep main entrance canopy, the covered terraces below the studio, the west side of the flower room, and the terrace that leads to the sauna. The entrance canopy becomes a threshold that mediates between the contrasting experience of the outside and inside. The exposure gradually decreases from the wide open outside to the entrance canopy and then to the tight passageway, which gives an impression of entering a narrow cave.

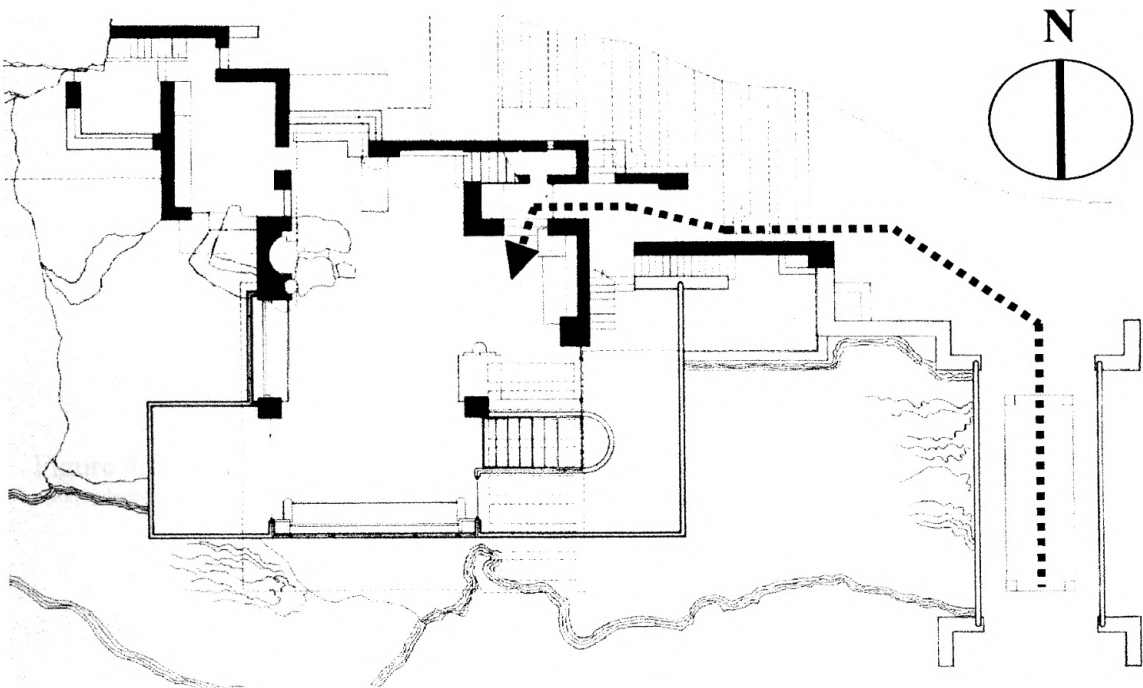


Figure 4.5. Fallingwater's circuitous path that leads from the outside to the inside.  
(Kaufmann, 1986, p. 73).

For both houses the entrance door is located deep into the dark inside. As figure 4.5 shows, Fallingwater's long, horizontal, masonry wall juxtaposed with the natural rocky hill on the north side creates a dark, deep entryway that evokes a feeling that someone is disappearing into a secure depth of primordial cave. Once passing and turning left, one finds oneself in a brightly lit, wide-open space of the living room where the

house feels as if it is floating in nature. Here the inside seems to stand in the field of outside.

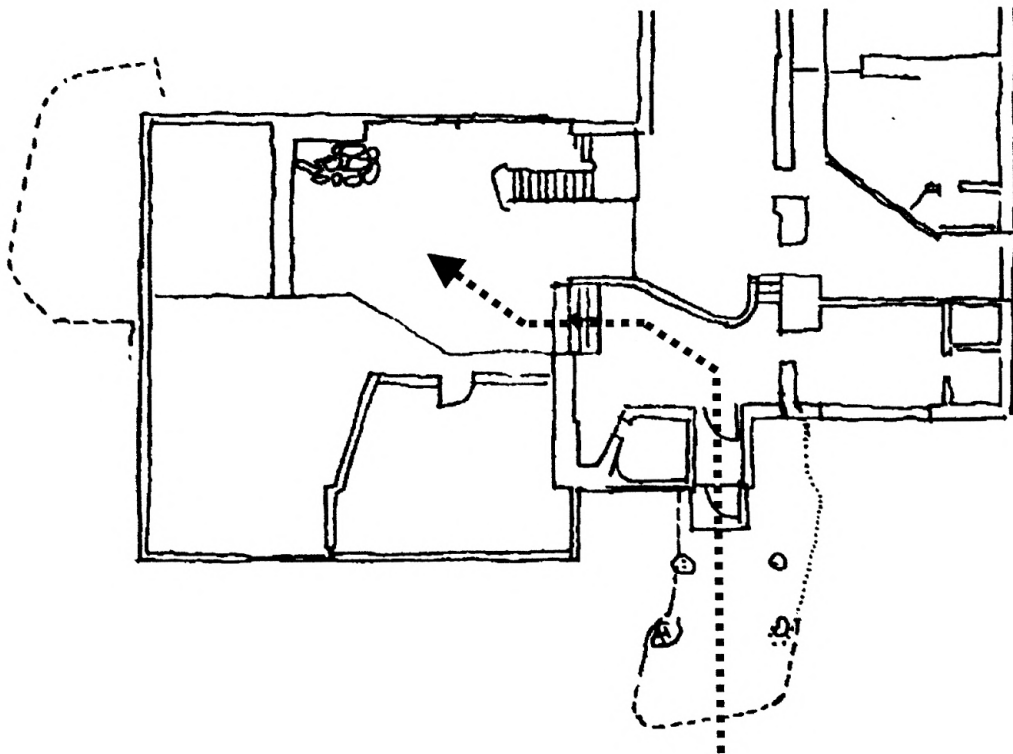


Figure 4.6. Villa Mairea's circuitous path that leads from the outside to the inside.  
(Reproduced from Pallasmaa, 1998, p. 146).

In Villa Mairea entry, as figure 4.6 suggests, the primitive and restless image of the entrance canopy extends outward to the street in order to lead us into the inside by a circuitous path that continues to the entrance lobby. Similar to Fallingwater's stretching stone masonry wall, Villa Mairea's spruce pole screening delineates the eastern edge of the entry to provide enclosure and direction. The entryway, which doesn't admit more than one person at a time, further emphasizes, by its narrowness, one's arrival to a secluded interior. In short the tight entrance, suddenly overtakes the generous and inviting canopy. At this point there is a complete closure and absence of a view from the

outside. There is a definite separation from the outside except for the top skylight that concentrates light from above. Connection is made with sky, while separation is made with the surrounding landscape. At this point, the sense of insideness is strongly pronounced because of the complete enclosure and absence of visual connection to the outside.

The entrance hall, which follows the tight entry, is more generous spatially and welcomes one's arrival to a safe, accommodating interior. The circuitous path ends there as it guides one by its skewed wall and wooden poles that metaphorically represent the image of the outside forest. As seen from the entrance hall, the light that showers the living room is inviting, because seeing the light without seeing its source elicits an impulse to encounter a brighter place and view to the outside. After finishing the circuitous path and the steps leading to the living room, one is connected to the outside world once again, whereby an unimpeded view to the outside unfolds in every direction. In the living room, one is visually connected to the outside while physically remaining inside. From the tempered interior, one experiences the palpable presence of the exposed exterior.

Fallingwater's and Mairea's deep entrances also express a strong dialogue between inside and outside. The sense of insideness is pronounced by different manipulations that evoke an atmosphere of safety and refuge, beginning with the very entrance to the central part of the houses. The roughly dressed stone pavement adds an element of security to the entrance of both houses by its strong attachment to the ground. In the case of Fallingwater's cave-like entryway, the heavy stone masonry walls echo the adjacent rocky hill and the stone ledges of Bear Run, whereas the spruce poles and the

lashed wooden supports of Mairea's deep and dark entrance canopy resonate with the surrounding forest. In short, the entrances of both houses elicit a strong sense of refuge while employing natural materials unique to the respective sites.

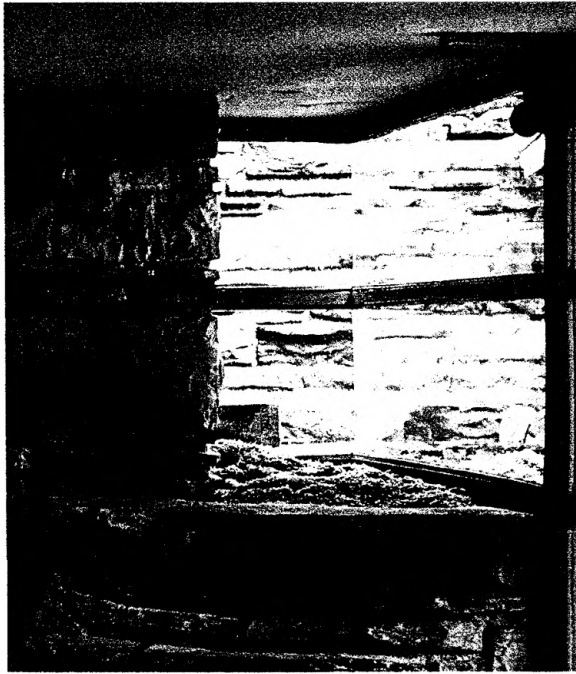


Figure 4.7. Fallingwater. Absence of wall and frame at corners immensely decreases the house's sense of enclosure. (Kaufmann, 1986, p. 156).

The wide transparent glass openings used in both houses, particularly in Fallingwater, play a crucial role in letting the outside flow into the inside and vice versa. As figure 4.7 suggests, Wright often left out the walls and the vertical frames from the corners of his windows to let the glass prevail over the opacity of solid wall. The absence of walls and frames opens a new opportunity to see the outside through the corners, which was not possible before. In addition these glass corners emphasize the fragility of the wall and tend to dissolve its presence, thus merging the inside with the outside. Jacobson corroborates this observation by writing that “if the corners or edges of a space are clearly defined, we will feel we are inside something. If we cannot perceive the boundaries of the space, we will feel less enclosed” (Jacobson, 1990, p. 13). Wright



himself said that “ the wall was no longer the side of a box. It was enclosure of space affording protection against storm or heat only when needed. But it was also to bring the outside world into the house and let the inside of the house go outside” (Wright, 1954, p. 38). He indicated that he was working to bring the wall towards the function of a screen, as a means of opening up space, which would allow the use of the whole space.

The stair that runs from Fallingwater’s living room down to Bear Run is another powerful in-between element that fuses the house’s inside with the river. The stair provides an opportunity to go down and physically meet the outside at an unanticipated spot. It enables the residents of the house to intimately live with the outside. And it seems that the stair doesn’t have any other purpose than engaging the inside with the outside. As figure 4.7 suggests, the windows in Fallingwater relate the inside with the outside in a horizontal axis, whereas Wright’s unusual stair links the inside with the outside in a vertical axis.

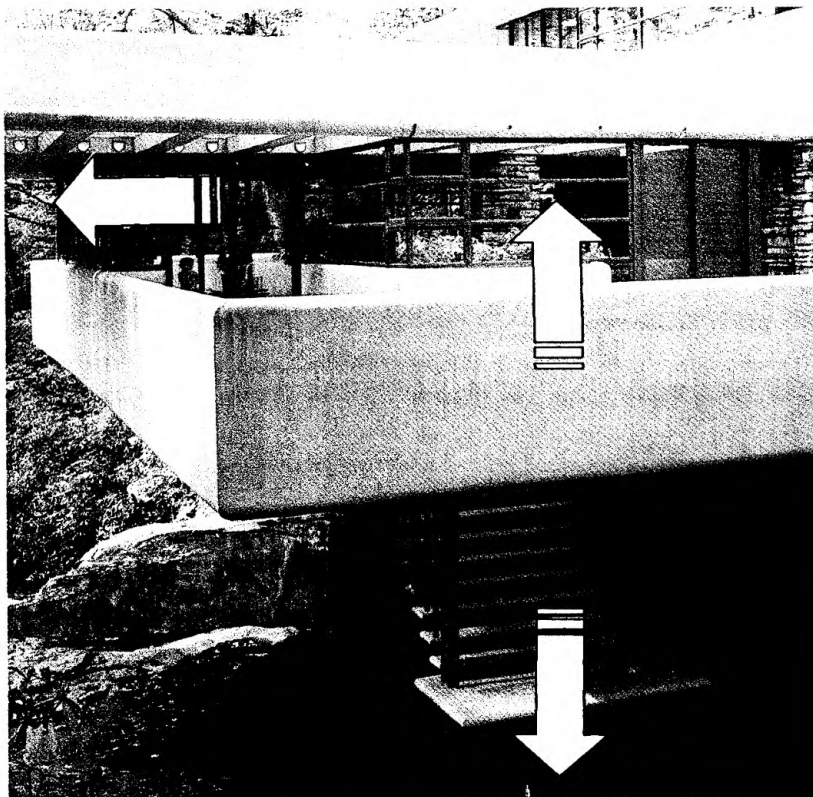


Figure 4.8.

Fallingwater’s windows link the inside and outside in horizontal axis, while the living room stair to Bear Run links the inside with the outside in a vertical axis. (Kaufmann, 1986,p. 100).

Moreover, Wright's very decision to project the house over the waterfall leaves the inside in the field of the outside. What makes this architectural solution unique is that one is constantly reminded of the powerful presence of the stream without seeing it. The unrelenting sound the waterfall makes enables the residents to experience the outside while staying inside. In this sense, the experience of the outside is not only visual but also involves haptic and aural experiences as well. In other words, the inside-outside link is not limited to the vertical and horizontal dimension, but is multi-dimensional. In short, Wright's approach of blurring the boundary between the inside and outside of Fallingwater is very intricate and involves a multi-sensory experience.

#### **b. Interpenetration**

Besides in-betweenness, the continuity between the inside-outside relationships expressed by the two houses is achieved through an additional theme that I call here *interpenetration*. Interpenetration links inside and outside in two different ways. As figure 4.8 illustrates, the first situation relates the two domains by the projection of parts of the building into the landscape. In this sense, the inside is projected to the outside. The extensions of the building fabric act as links between inside and outside while remaining in the field of the outside. A wall that continues beyond the interior, reaching out to define exterior space, is an example of interpenetration of this type. The building as inside reaches to meet the outside.

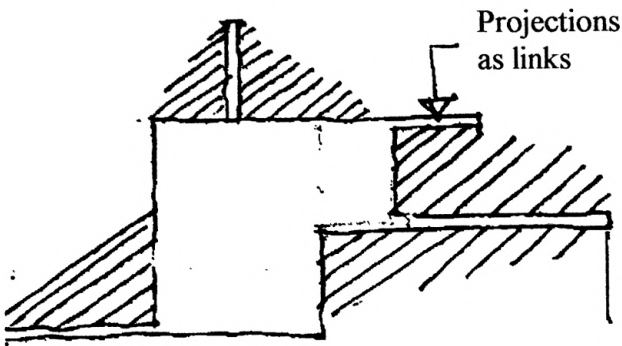


Figure 4.9.  
Interpenetration. Parts of a building that stretch out to the landscape and project the inside to the outside.

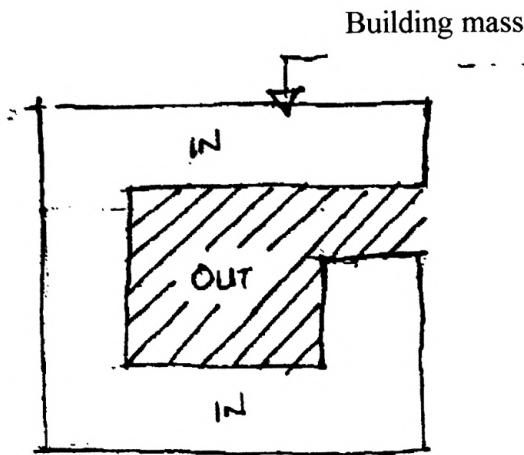


Figure 4.10.  
Interpenetration. The outside space cradled by the building mass becomes a link between inside and outside. Here outside stands in the field of inside.

The second type of interpenetration involves a situation where an outside space defined by a building mass becomes a link between inside and outside. Here the inside cradles the outside—for example, when a building wraps around its outdoor space. Unlike the first situation that alludes to a physical link, this second type involves a spatial link. In this sense, the outside stands alone in the field of the inside. As figure 4.9 suggests, this strategy powerfully captures the outside so that in some cases the defined space can be experienced, paradoxically, as the most interior space. A courtyard scheme is typical of this type of interpenetration.

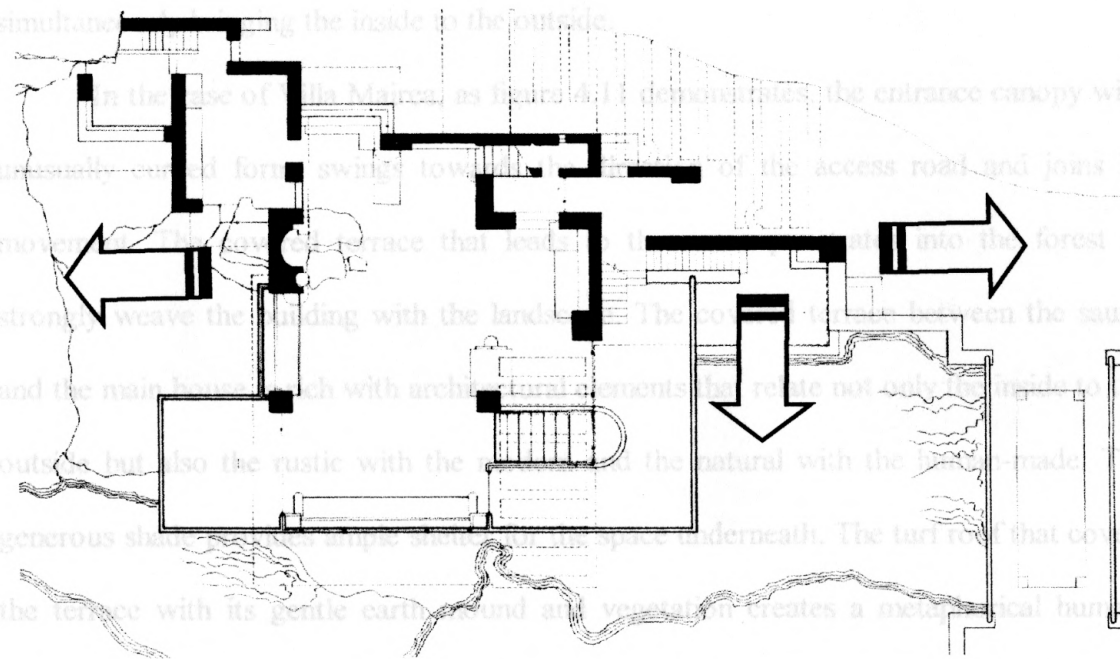
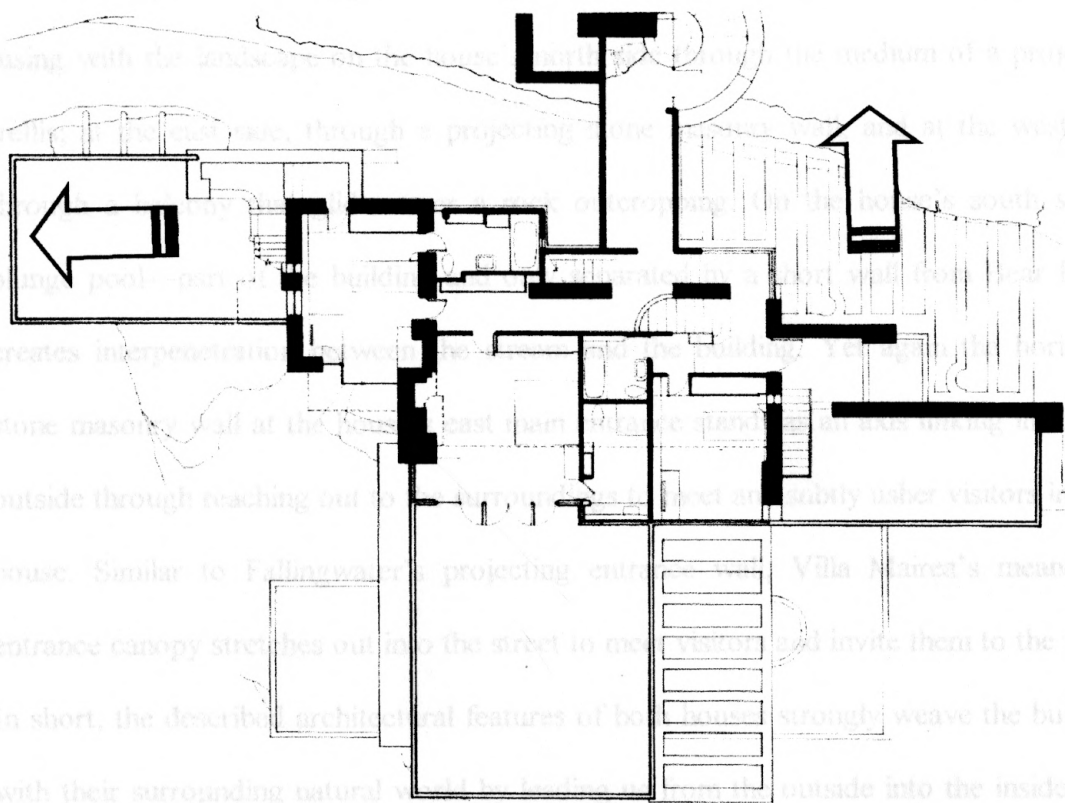


Figure 4.11. Interpenetration. Fallingwater's projecting trellis over the driveway, west terrace, plunge pool, boulder at fireplace, and horizontal entrance wall all tie the house to the natural landscape. (Kaufmann, 1986, p. 73, 135).

As figure 4.10 suggests, Fallingwater draws on interpenetration by physically fusing with the landscape on the house's north side through the medium of a projecting trellis; at the east side, through a projecting stone masonry wall, and at the west side, through a balcony that glides over a rock outcropping. On the house's south side, a plunge pool—part of the building and only separated by a short wall from Bear Run—creates interpenetration between the stream and the building. Yet again the horizontal stone masonry wall at the house's east main entrance stands as an axis linking inside and outside through reaching out to the surroundings to meet and subtly usher visitors into the house. Similar to Fallingwater's projecting entrance wall, Villa Mairea's meandering entrance canopy stretches out into the street to meet visitors and invite them to the inside. In short, the described architectural features of both houses strongly weave the buildings with their surrounding natural world by leading us from the outside into the inside while simultaneously bringing the inside to the outside.

In the case of Villa Mairea, as figure 4.11 demonstrates, the entrance canopy with unusually curved form, swings towards the direction of the access road and joins its movement. The covered terrace that leads to the sauna penetrates into the forest to strongly weave the building with the landscape. The covered terrace between the sauna and the main house is rich with architectural elements that relate not only the inside to the outside but also the rustic with the modern and the natural with the human-made. The generous shade provides ample shelter for the space underneath. The turf roof that covers the terrace with its gentle earth mound and vegetation creates a metaphorical human-made landscape miniature that fuses the house with the surrounding forest. The rustic stone masonry that runs parallel to the roof on the east side further ties the building with

the natural landscape. While merging the landscape, this masonry subtly suggests itself as another linking axis.

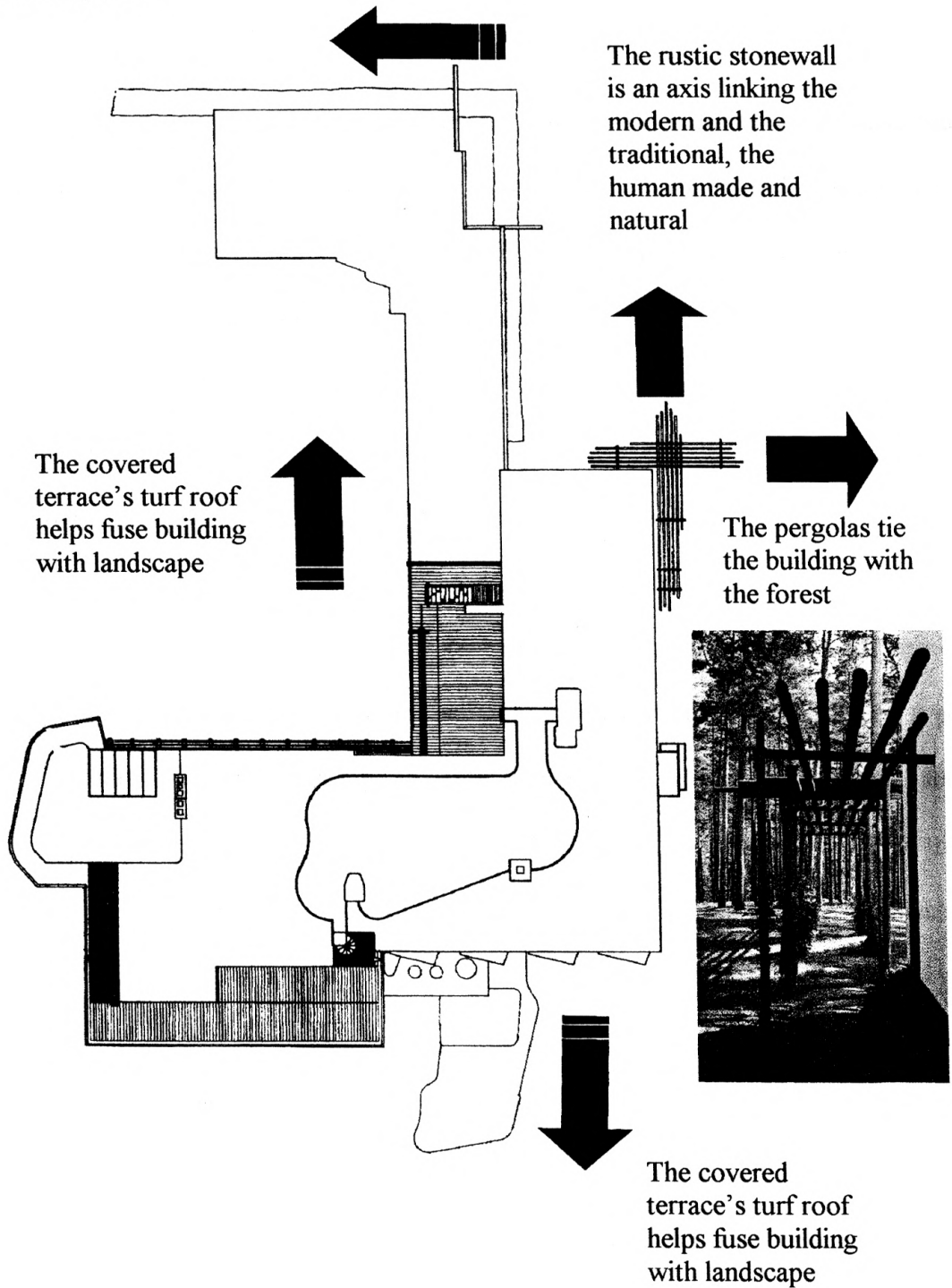


Figure 4.12 Interpenetration. The entrance canopy, the rustic stonewall, the covered terrace turf roof, and the pergolas leading to the forest all work to tie Villa Mairea with the natural landscape. (Pallasmaa, 1998, p. 65,148).

Villa Mairea's transversing pergolas, which project out in two directions toward the northeast corner of the main house, are additional architectural features that link the building with the surrounding forest. The relationship created between the building and the forest is not only through material harmony but is also experiential because the pergolas direct us visually and physically to look at and move into the forest. The creepers on the southeastern side of the main house soften the corner by uniting the east side elevation with the main façade. The vertical metal bars anchored to both sides of the façade seem to liquefy the wall and make it part of the landscape by the creeping vines. Like a wide glass window that dissolves the presence of a wall, these creepers as well do the same thing by transforming the wall into features of the natural landscape. In short, all of these elements of Villa Mairea create a strong link between inside and outside through physical interpenetration of parts of the building with the surrounding landscape.

All these examples for Fallingwater and Villa Mairea so far illustrate the first type of interpenetration where projecting parts of the houses create a link between inside and outside by harmonizing the building with the natural site and by drawing the inside to the field of the outside. We next examine the second type of interpenetration that links inside-outside by a means of spatial definition.

On Fallingwater's south side that faces Bear Run, the building is interlocked with the outside by the projecting balconies that spread out into the landscape in every direction. The living room and the master bedroom with their radiating terraces capture the stream by creating a dramatic interlock between the building and the landscape. As figure 4.12 illustrates, the projecting balconies, by penetrating into the outside space, allow that space to penetrate back into the building mass. As a result, the interpenetration

creates defined spaces that belong simultaneously to the inside and the outside. In Fallingwater, in contrast to Villa Mairea, the interlock is more of a vertical than horizontal phenomenon suggested by the topographic nature of the site. Because Fallingwater resonates with the sinking nature of its perilous placement, the layers of space captured between the roof overhangs from above and the projecting balconies from below interweave the inside with the outside in a vertical dimension.

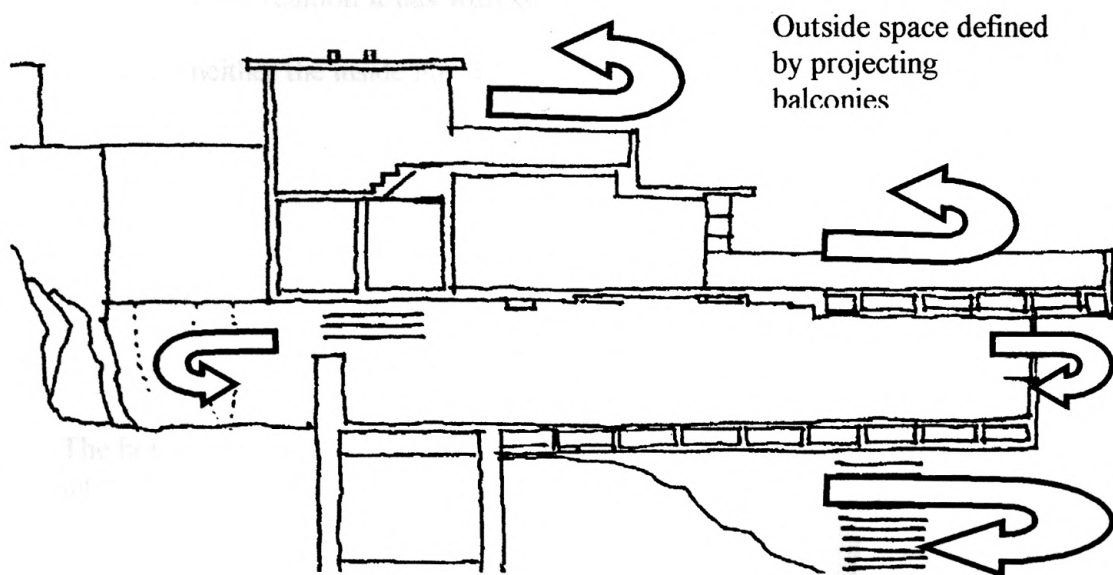
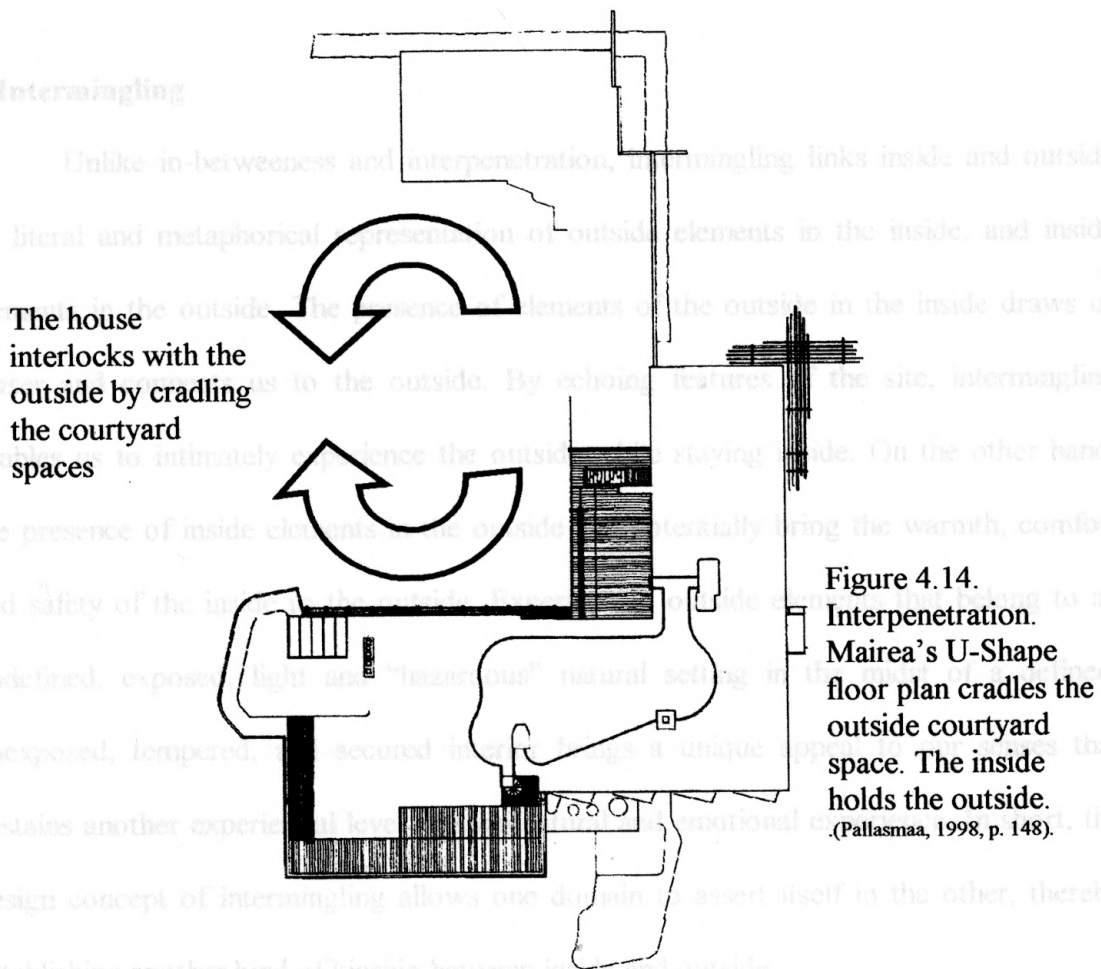


Figure 4.13. Section showing interpenetration. The projecting balconies in Fallingwater cradle the outside space and generate another spatial link between inside and outside. (Reproduced from Kaufmann, 1986,p. 73, 96).

In contrast to Fallingwater, the spatial interpenetration of the inside and outside in Villa Mairea assumes a horizontal dimension. Again, similar to Fallingwater, the reason seems to arise from the topographic nature of the site. Even though Villa Mairea is located on top of a gently rising hill, the spot where the house stands is relatively flat.



Therefore, Aalto seems to take advantage of the generous expanse of the site to interweave it with the building mass so that the inside and outside engage in a continual horizontal dialogue. In Villa Mairea, a strong weave of inside-outside is achieved by the west exterior spaces defined by the main house, covered terrace and the sauna bath. As figure 4.13 indicates, the U-shape floor plan cradles the outdoor space. Here, the inside holds the outside through the courtyard scheme. This space, defined and cradled by the building mass, becomes a link between inside and outside. It belongs both to the inside and outside by the relation it has with both. The interlock of the building with the outside world causes neither the inside nor the outside to dominate.



We have seen how interpenetration creates a link between inside and outside through the articulation of the two buildings parts and spatial features. Both Wright and Aalto create a link by manipulating the threshold between inside and outside. The continuity made possible by these design qualities is so subtle that we don't even recognize it, or we take it for granted, though we strongly experience it. Next, I present another way of linking the inside and outside of the two houses—what I call *intermingling*, which creates a link between inside and outside by using a literal or metaphorical element to bring the feel of the outside into the inside and the sense of the inside into the outside.

### **c. Intermingling**

Unlike in-betweenness and interpenetration, intermingling links inside and outside by literal and metaphorical representation of outside elements in the inside, and inside elements in the outside. The presence of elements of the outside in the inside draws us closer and connects us to the outside. By echoing features of the site, intermingling enables us to intimately experience the outside while staying inside. On the other hand, the presence of inside elements in the outside can potentially bring the warmth, comfort and safety of the inside to the outside. Experiencing outside elements that belong to an undefined, exposed, light and “hazardous” natural setting in the midst of a defined, unexposed, tempered, and secured interior brings a unique appeal to our senses that sustains another experiential level of architectural and emotional experience. In short, the design concept of intermingling allows one domain to assert itself in the other, thereby establishing another kind of kinship between inside and outside.

Frank Lloyd Wright's way of clasping his hands whenever he talked about nature and architecture to illustrate the inseparable union that has to prevail between them is one vivid demonstration of the idea of intermingling. In Fallingwater, Wright used the natural boulder rock exposed at the living room fireplace as one element of outside represented in the inside. As figure 4.14 shows the boulder is intentionally left to outcrop over the floor level in its natural stone state. The association of the boulder with the fireplace powerfully expresses the phenomena of the ground, which is particularly a feature of the outside. The outcropping creates a feeling that one is literally living with a primordial force of nature. The natural and genuine connectedness of the boulder from the outside into the inside, and its sense of permanence and experiential depth ensures its authenticity.

Similarly, as figure 4.15 illustrates, Aalto used roughly cut natural stones in the fireplace of Villa Mairea's living room. Though these roughly cut stones suggest an element of the outside, the meaning created by them is perhaps not as authentic as Fallingwater's because they are arbitrary representations of the outside and do not have any clear connectedness to the specific site. As a result, we cannot intimately connect ourselves with the outside because we don't have any clear site reference. Dovey (1985) writes that authenticity lies in an "undisputed origin—a connection between the form of the phenomena and the processes that produce it," and it is "a property of connectedness between the perceived world and the believed world" (ibid, p. 46-47). Fallingwater's fireplace powerfully has this connectedness and experiential depth whereas Villa Mairea's fireplace does not.



Figure 4.15 The boulder and fireplace as a phenomenon of the ground and presence of the outside in the inside. (Kaufmann, 1986,p. 8McM7).

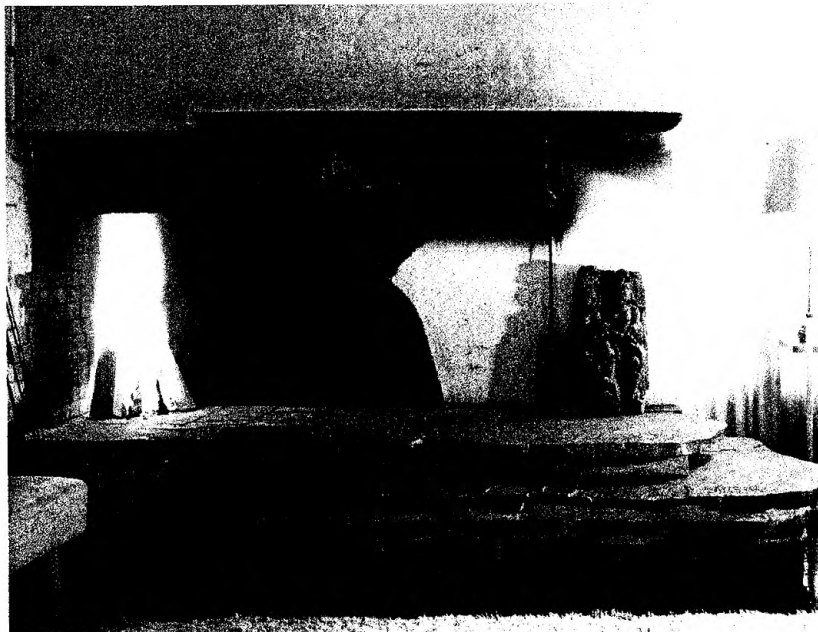


Figure 4.16 Villa Mairea's roughly cut stone fireplace as an element of the outside in the inside. (Pallasmaa, 1998, p. 79).

The use of uncut natural stone in both houses is a literal representation of the outside element in the inside. When it comes to a metaphorical representation of the outside elements in the inside, however, both Wright and Aalto seem to convey an authentic meaning in the inside of the two houses by reflecting certain peculiarities of the respective sites. Fallingwater's waxed flagstone floor and Mairea's columns and spruce poles are metaphorical representations of the outside in the inside. Fallingwater's waxed flagstone floor appears as wet ground thus representing Bear Run in the building. As figure 4.16 illustrates, when simultaneously seen through the suspended stair, the surface of the stream and the surface of the living room floor suggest a striking similarity—the presence of water both inside and outside.

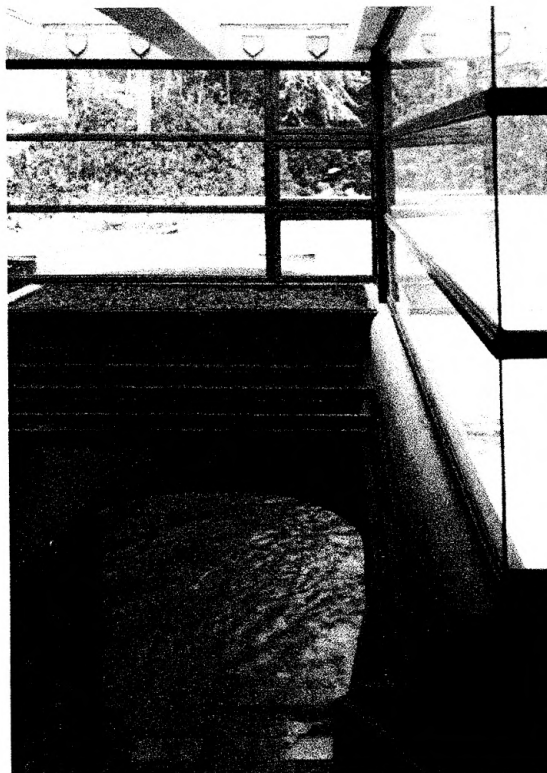


Figure 4.17. Metaphorical representation of the wetness of the stream in the inside. The waxed flagstone floor has a striking resemblance to the surface of the water as it is seen through the stair that runs down to Bear Run. (McCarter, 1994, p. 41).

Similarly, the boulder which rises right through Fallingwater's flagstone floor resembles Bear Run's rock ledges that outcrop through the surface of the stream. The boulder is not waxed so that it literally appears dry next to the wet looking waxed flagstone floor. The boulder and waxed flagstone are originally of the same material, but their contrasting appearance of dryness and wetness make them appear different. Further, the waxed flagstone conveys an ambivalent meaning of safety and hazard at the same time—safety, because of the strong attachment and anchorage the stone floor has with the natural ground; hazard, because of the impression the floor gives of water.

Aalto's use of the forest rhythm as a metaphorical representation of the natural outside inside Maira also creates a dramatic link and dialogue between inside and outside. As figure 4.17 demonstrates, the outside forest that surrounds the house is echoed in the living room, music room, library, and staircase and entrance hall by a spontaneous rhythm of columns and non-structural vertical poles. The variety created by the articulation of individual columns, which appear either singly or in pairs or triplets, seems to be a deliberate intention to confuse the regular reading of the structural system so that the columns resemble the outside forest. While the use of rattan to bind black painted pairs of steel columns creates an image of a peeled tree trunk in the middle section, use of wooden slats to face the structural columns hints of the aged bark of a tree trunk. Further, the white painted column cast in concrete and placed in the axis of the library entry reminds one of the continual presence of the forest rhythm in the interior space.

As one steps into the living room from the entrance hall and looks out through the north and southeast glass windows, the articulated columns join the outside rhythm of the

forest. The effect of the columns and the wide glass surface dissolves the inside space, which merges with the outside. Additionally, by simulating the forest light, the glazed wall elements in the undulating partitioning above the library bookcases metaphorically represents the outside in the inside. As figure 4. 18 illustrates, the glazed units simulate the forest light. The striking effect of light created by the glazing units dissolve the whole presence of the library partition and transforms it into a natural screening made of forest. Here, one is strongly connected to the outside by sensing the forest through the light.

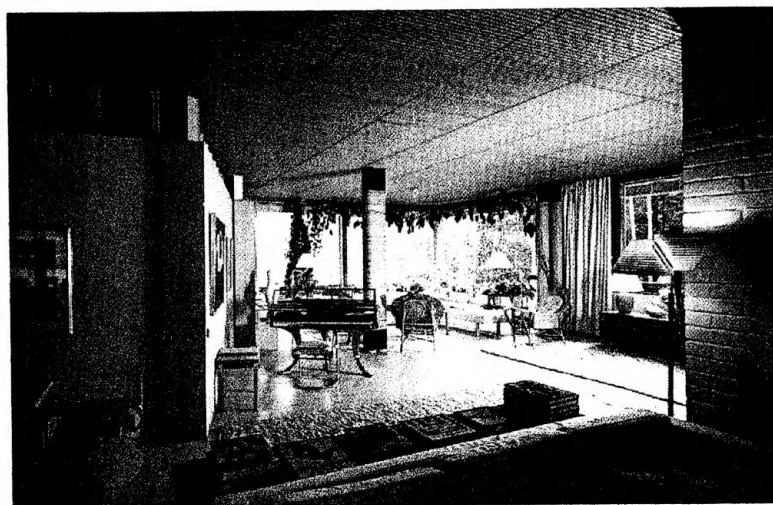
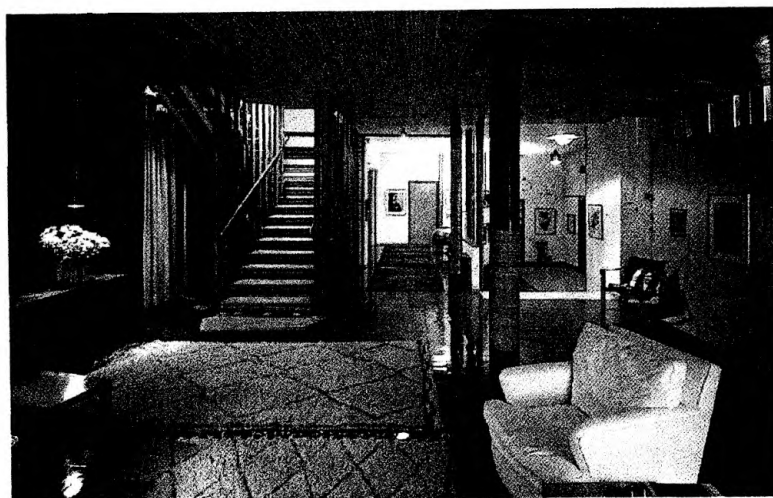


Figure 4.18 The arrangement of Villa Mairea's columns as singles, pairs and triples, and their different treatment confuses the conventional structural grid system. The columns, along with the non-structural columns and wooden poles, echo in Mairea's living room the rhythm of the outside forest. (Pallasmaa, 1998, p. 107).

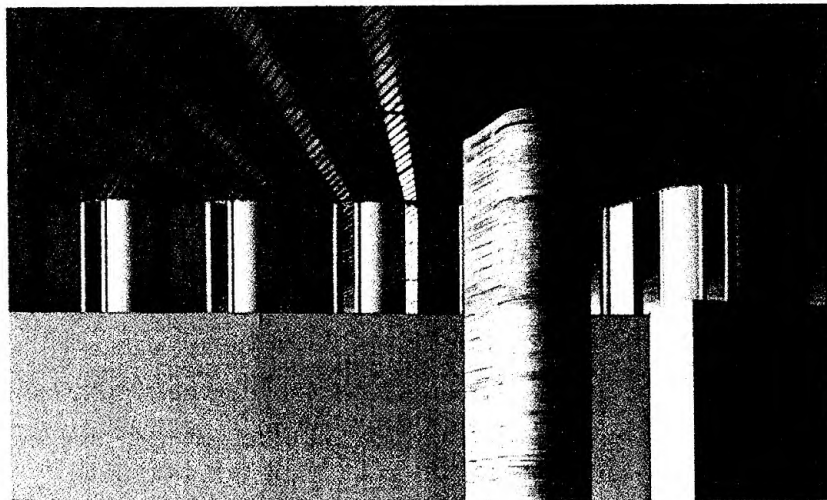
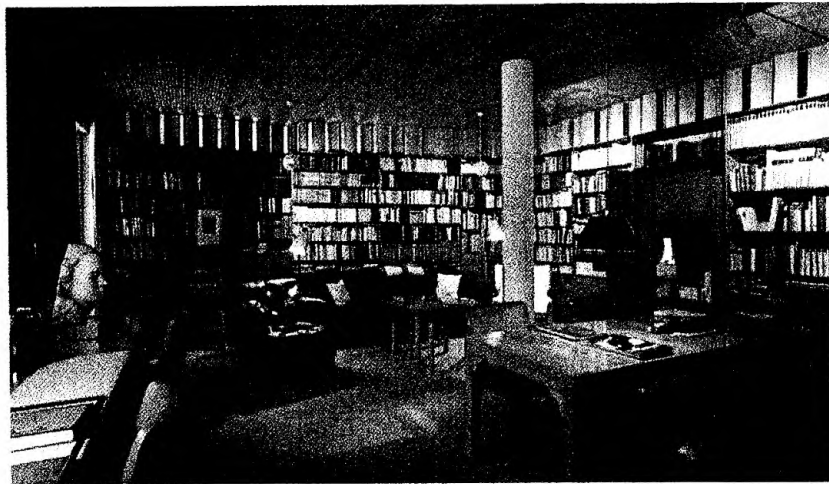


Figure 4.19 The undulating glazed units above the library book shelves simulate the forest light and dissolve the partition into a forest screen. (Pallasmaa, 1998, p. 113).



Villa Mairea's flower room exhibits quite a different atmosphere than the other rooms of the house. As figure 4.19 shows, the whole ambience of this room reflects features of the outside. The roughly cut stone floor pavement, the absence of solid walls that obstruct the access of light, the furnishings and natural wall cladding materials elicit a feeling of a cool, shaded garden in the midst of an inside. Pallasmaa (1998) describes this room "as a miniature conservatory for arranging flowers picked from the garden" (p. 262). In this sense, the flower room evokes images of traditional Japanese architecture. Here the outside is intermingled with the inside by total transformation of the whole room with features of an outside.



Figure 4.20 The plants, roughly dressed stone flooring, use of natural cladding materials for the wall and ceiling, the transparency of the windows, all give the flower room features unique to an outside space. The whole appearance of the room evokes images of traditional Japanese architecture. (Pallasmaa, 1998, p. 262).

In an opposite way, Villa Mairea's covered terrace is an outside space given a quality of the inside by treatments peculiar to inside space. As figure 4.20 illustrates, use of chairs and tables to furnish the terrace and the clean, tidy white painted posts and beams bring the features of inside to the outside. The conventional way of using bright painted elements in the inside and rustic elements in the outside is reversed in Villa Mairea. The use of a rustic fireplace in Villa Mairea's covered terrace is another linking element. The rustic fireplace faces to the outside terrace while at the same spot another fireplace faces to the inside dining room. This fireplace maintains interior temperatures at a constant and comfortable level. Further, this fireplace is a symbolic center of a house and creates a sense of insidiness. In a similar way, the rustic fireplace facing the outside elevates the function of the terrace to an outdoor room by creating a sense of center, insidiness, warmth and comfort that are typical of an inside space.

Whereas Fallingwater exhibits the presence of outside elements in the inside in a literal and metaphorical sense, the notion of intermingling the inside with the outside by the use of inside elements in the outside, however, seems to be absent. In this sense, Wright seem to have given more emphasis to drawing the outside into the inside than drawing the inside into the outside. In contrast, Villa Mairea exhibits as much presence of the inside elements in the outside as does the outside elements in the inside. In Villa Mairea, the inside asserts itself more powerfully in the outside than in Fallingwater. As a result, the intermingling of inside-outside appears to be more balanced in Mairea than Fallingwater.



Figure 4.21 The presence of the rustic fireplace in the covered terrace: its furnishing, the clean and tidy finishing for the columns and ceiling elevates the terrace to an outdoor room furnish with a sense of warmth, comfort and safety typical of an inside space. (Pallasmaa, 1998, p. 101).

In this chapter, the interpretation of the two houses using Harries' natural symbol of inside and outside has been presented. The analysis of the inside-outside relationship for the two houses was conducted in terms of the three architectural themes of in-betweenness, interpenetration, and intermingling. The analysis suggests that the inside-outside relationship is a major theme in the design of the two houses. In the next chapter, I present an interpretation of the two houses using some of Harries' other natural symbols—light-dark, horizontal-vertical, up-down, and center-periphery.

## CHAPTER 5

### FALLINGWATER AND VILLA MAIREA AS THEY EXPRESS THE NATURAL SYMBOLS OF LIGHT-DARK, HORIZONTAL-VERTICAL, UP-DOWN, AND CENTER-PERIPHERY

In the previous chapter, I have presented an interpretation of the two houses using Harries' natural symbol of inside and outside. We have seen how a sense of insidiness and outsidiness and a continuity between the two domains is central to the creation of Fallingwater and Villa Mairea. The analysis indicated that the natural symbol of inside and outside is crucial because a key task of architecture is creating an inside in the midst of the outside. This chapter further analyzes the two houses from Harries' perspective, using his other natural symbols of *light-dark*, *horizontal-vertical*, *up-down*, and *center-periphery*. These natural symbols are jointly presented because all of them have something in common—that is, they all considerably affect the relationship between inside and outside in one way or another.

As the interpretation of Fallingwater and Villa Mairea in terms of inside and outside suggests, the degree of enclosure and exposure and the sense of insidiness and outsidiness is directly influenced by light and dark. We have also seen that the continuity between inside and outside assumes either a horizontal or vertical quality. Similarly, the sense of insidiness in the two houses is significantly accentuated by the idea of center. Periphery, on the other hand, is a boundary where the edge of the inside starts to exist. Moreover, periphery is an in-between threshold that determines whether inside and outside merge or entirely separate. The architectural manipulation of periphery resolves the degree of enclosure and exposure of the inside space. In short, the analysis of the two

houses using these natural symbols will help us to better understand in a more comprehensive manner the sense and degree of insiderness and outsiderness and the link between them.

## **Light and Dark**

Another important natural symbol described by Harries is *light* and *dark*. The strong contrast created by light and dark facilitate the legibility and clarity of architectural objects. Jacobson (1990) writes that “ the contrast between light and dark allows us to see form. Our eyes search for contrasts in light quality, focusing on the linking borders between them. In a constant, uniform field of light, we see nothing” (p. 49). In this sense, the effect of light and dark in the design of Fallingwater and Villa Mairea is explored in terms of two contrasting themes—“*exposed-tempered*” (ibid., p. 21) and “*something-nothing*” (ibid., p. 39). On one hand, *exposed-tempered* helps to explicate how the contrast between light and dark create a sense of insiderness and outsiderness to fulfill the need for refuge and outlook—a desire to see without being seen. On the other hand, *something-nothing* helps to analyze how the contrast between light and dark works to achieve a desired formal expression of the two houses through material depth, protrusion, and recession of the buildings’ material fabric.

From the east side, the deep and narrow main entrance of Fallingwater is engulfed with darkness. The darkness increases as one moves deeper. The tightness and darkness of the space proclaims one’s arrival to an unexposed refuge—a place not to be seen. Wright seems to be intentional when using various elements of the site and the building to keep the entry away from the reach of light. The raised natural terrain and the

vegetation on the north and northeast sides reduce exposure and access of light. The overhanging trellis filters the light before it hits the entryway. The roughly dressed, thick masonry walls located on both sides of the entryway provide screening while at the same time hold back light. The whole experience of approaching Fallingwater's entry elicits a feeling of disappearing into a dark and mysterious cave.

Unlike the dark entry, the whole experience dramatically changes as one steps into Fallingwater's living room. The successive massive walls that guide one's approach to the house suddenly dissolve into a glass surface that admits much light to the inside. The darkness of the entry suggests one's arrival to a tempered and unexposed interior. The light reconnects the tempered interior to the exposed exterior. In short, light is introduced through transparency and dark through opacity. Here, as figure 5.1 illustrates, the beholder can see the bright outside with out being seen. In this sense, light and dark work in concert to fulfill the need for refuge—a place for concealment, and an outlook—a place for unimpeded opportunity to look out unobserved.

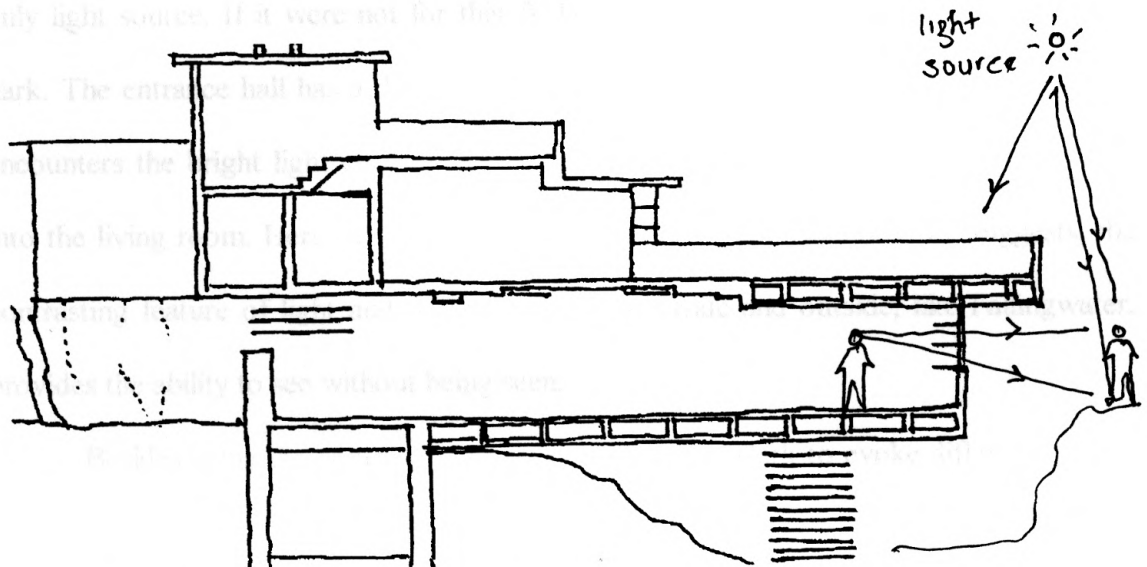


Figure 5.1 In Fallingwater, the relationship of dark inside and light outside gives the opportunity to see without being seen. (Section reproduced from Kaufmann, 1986, p. 73).

Similar to Fallingwater, the feature of light and dark is employed in Villa Mairea as an effort to create a tempered inside in the midst of an exposed outside. Making the entrance area darker progressively from the outside seems to demarcate the boundary where the outside ends and the inside begins. As one moves deeper into the inside, however, light triumphs over darkness, hinting at the end of the inside and the beginning of the outside. Jacobson writes that “We are attracted to places that are defined by a contrast in light level. When we choose an interior place to sit, it is almost always in the light—at a window, near a fire or beside a candle or lamp. On the other hand, when outdoors and in bright sun, we tend to seek the dappled light beneath an umbrella, tree or porch roof” (ibid., p. 50).

The deep and low canopy of Villa Mairea’s main entrance with the spruce pole screening on its eastern side creates a dark effect in contrast to the bright outside. The screening and canopy not only reduce the light reaching the entry but grant visual protection as well. The tight entry, which is closed from its four sides, has a skylight, the only light source. If it were not for this skylight this space would have been completely dark. The entrance hall has a dimmer light and no visual connection to the outside. One encounters the bright light coming through the north side glass windows when stepping into the living room. Here the power of light overtakes dark. As figure 5.2 suggests, the contrasting feature of light and dark in relation to inside and outside, like Fallingwater, provides the ability to see without being seen.

Besides using the contrasting qualities of light and dark to evoke different effects, Wright and Aalto share a common design approach in creating a gradual transition from dark to light and vice versa. The smooth transition in Fallingwater is achieved by the

introduction of in-between elements: the natural terrain, trellis, deep roof overhangs and balconies. Jacobson writes that the introduction of elements like these moderates and tempers the brightness contrast (ibid., p. 53). The overhanging trellis on the east side of the living room and terrace, and the generous roof eaves that overhang on the deep balconies are the in-between elements Wright introduced to moderate the contrast between the dark interior and bright exterior. Moreover, these elements become significant places whereby one can experience both dark and light at the same time. This situation becomes a threshold of in-betweenness—a third zone, whereby neither dark (inside) nor light (outside) dominates. The result is a region where the contrasting pairs find reconciliation.

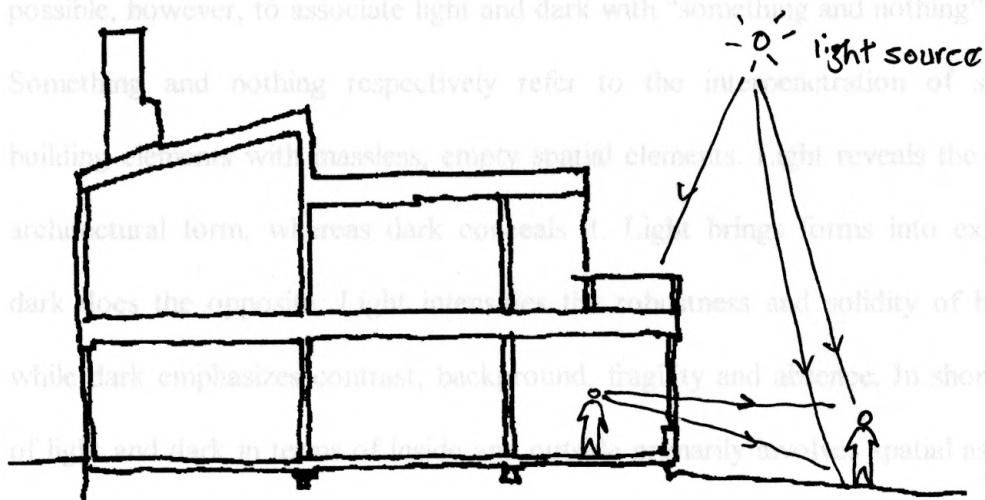


Figure 5.2 In Villa Mairea, the relationship of dark inside and light outside gives the opportunity to see without being seen. (Section reproduced from Pallasmaa, 1998, p. 150).

Similarly, Aalto has employed various techniques in moderating the transition between light and dark in Villa Mairea. Besides the projected canopy of the main entrance and covered terrace, he uses glazed wall elements above the library bookcases that simulate an effect of a forest light. Even though the library has ample illumination of



light from its south windows, the borrowed light that comes through the glazed openings above the book shelves produces a gentle, diffused quality. The light that comes through the glazed openings simulates the surrounding forest light in the inside space—that is, once again connecting the inside with the outside. The projecting windows of the children's bedrooms, open to the southeast, are other elements Aalto used to moderate the transition from the bright outside to the darker inside. The depth created within the window frames becomes a threshold whereby a smooth and gradual transition from light to dark takes place.

We have discussed light and dark in relation to the inside and outside relationship, particularly in regard to outlook and refuge—a desire to see without being seen. It is also possible, however, to associate light and dark with “something and nothing” (ibid., p. 39). Something and nothing respectively refer to the interpenetration of solid, massive building elements with massless, empty spatial elements. Light reveals the expression of architectural form, whereas dark conceals it. Light brings forms into existence, while dark does the opposite. Light intensifies the robustness and solidity of building parts, while dark emphasizes contrast, background, fragility and absence. In short, the relation of light and dark in terms of inside and outside primarily involves spatial association, but the relation of light and dark in terms of something and nothing refers to formal expression. Figure 5.3 and 5.4 respectively shows Fallingwater's and Villa Mairea's solid masses and massless empty spatial elements in terms of the contrast of light-dark.

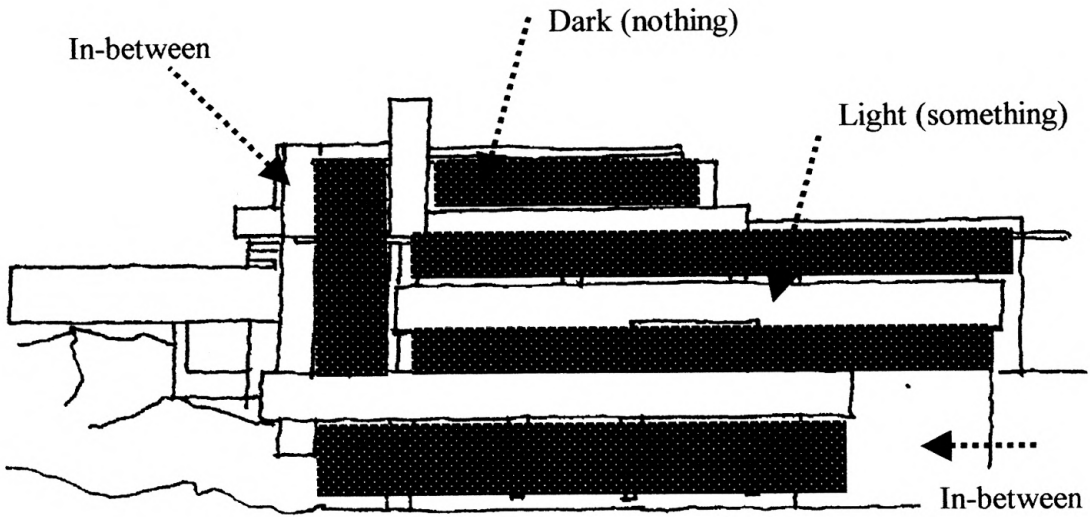


Figure 5.3 Light and dark in terms of something and nothing in Fallingwater.

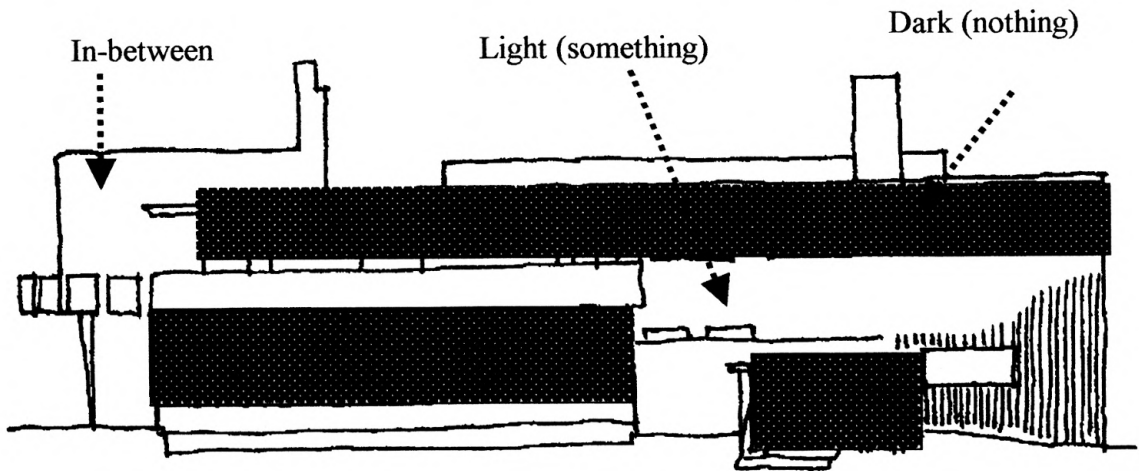


Figure 5.4 Light and dark in terms of something and nothing in Villa Mairea.

A strong play of contrast between light and dark in Fallingwater is demonstrated by the projecting solid balconies and recessed openings, respectively. The dark created by the recessed openings gives contrast and background to the dynamic and conspicuous horizontal balconies that stand out in light. The massive parts of the building are “something” (ibid.) because they are under light and have strong expression. The

recessed glass openings are “ nothing” (ibid.) because they are not visible to the eye, and since they are enveloped by dark. In Mairea, however, the contrast between light and dark is not as strong as in Fallingwater. Mairea’s façades are more planar or two-dimensional when compared to Fallingwater’s three-dimensional elevations. The more planar the architectural form of a building, the less is its something and nothing expression because the contrast of light and dark created by the shades and shadows of the building mass are absent.

In Villa Mairea, the white painted walls dominate the whole appearance of the building. A strong contrast of light and dark generated by the protrusion and recession of Fallingwater’s building mass is largely missing in Mairea. The use of materials such as rustic stone and wooden slats, however, create darker surfaces that absorb light and give contrast and background to the parts of the building that stand out in light. Therefore, the relationship of light and dark in terms of something and nothing in Villa Mairea is subtle compared to Fallingwater’s much bolder expression.

So far we have seen light and dark in relation to inside-outside and something-nothing. The next contrasting pair of Harries’ natural symbol I use to interpret the two houses is *horizontal* and *vertical*.

## Horizontal and Vertical

Another crucial natural symbol described by Harries (1988) is *horizontal-vertical*. Harries says that the horizontal ties us to the earth as when we are in state of sleep or death. Being parallel to the earth also suggests comfort and an indefinite beyond—a boundless space full of promise and unknown opportunity. In contrast, Harries speaks of the vertical as assertive. Effort is needed to stand upright. The vertical gathers the scattering power of open space and soars upward, suggesting immortality. The vertical establishes a center by connecting heaven and earth with a gathering axis. (p. 181-183). Harries adds that the experience of verticals and horizontals is profoundly ambivalent and “inseparable from our being in the world” (ibid., p. 189).

In this section, the interpretation of Fallingwater and Villa Mairea using the natural symbol of *horizontal-vertical* also incorporates the natural symbol of *up-down* because the relationship between up and down establishes the vertical axis of architecture. Jacobson (1990) writes that we experience the vertical axis created by up and down through our bodies, as they extend to the earth below and the sky above (p. 29). On the one hand, we experience the horizontal as our attachment to the earth—Wright (1954) perceived it as the earth line of human life or the line of repose (p. 38). On the other hand, the relationship between up and down elicits two ambivalent meanings. First, the sense of levity and uplift generated by the relationship of up and down allows one to look out over the surroundings and thus gives control and safety, but the detachment from the earth and the sense of height involved thereby engenders an element of hazard.

Figure 5.5. Horizontal elements in Fallingwater

If we look at Fallingwater in terms of vertical-horizontal and up-down, we find that the house appears to be dominated by horizontal rather than vertical elements. As figure 5.5 suggests, the spatial flow of the inside space and the formal expression of the house from the outside predominantly assume a horizontal dimension. As figure 5.7 suggests, however, vertical elements—especially the chimney and fireplace wall—play a critical role in gathering the scattering horizontal balconies which seem to spread out in every direction. As the vertical fireplace wall is to Fallingwater, the curved studio wall is to Villa Mairea. As figure 5.8 suggests, the studio wall treated with vertical slats acts as a gathering vertical element in Villa Mairea. Even though its rise is gentle compared to Fallingwater’s fireplace wall, the strong contrast it has with the horizontally accentuated part of Villa Mairea gives it the gathering power of a vertical axis.

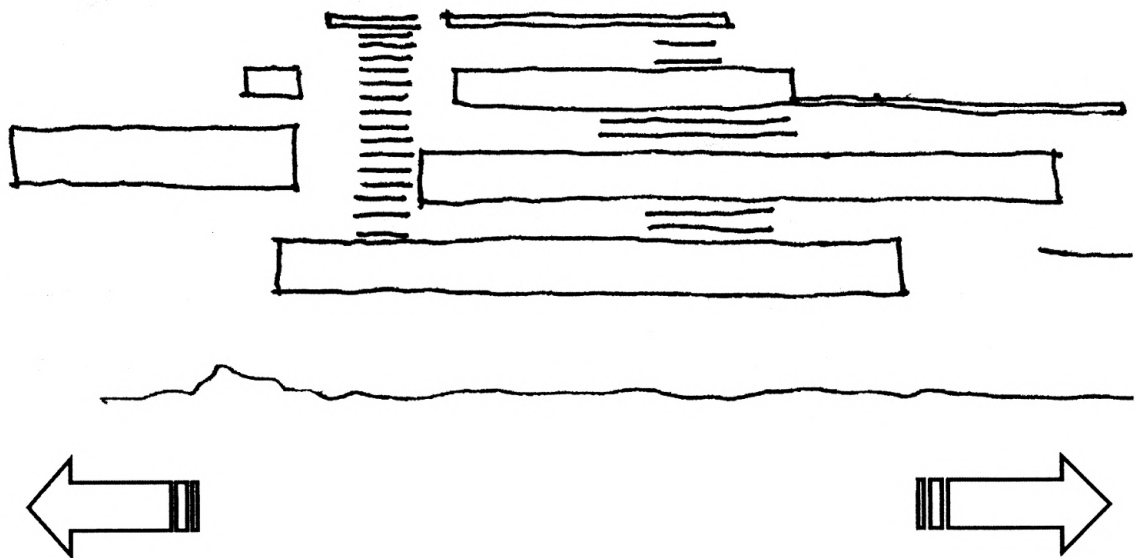


Figure 5.5. Horizontal elements in Fallingwater.

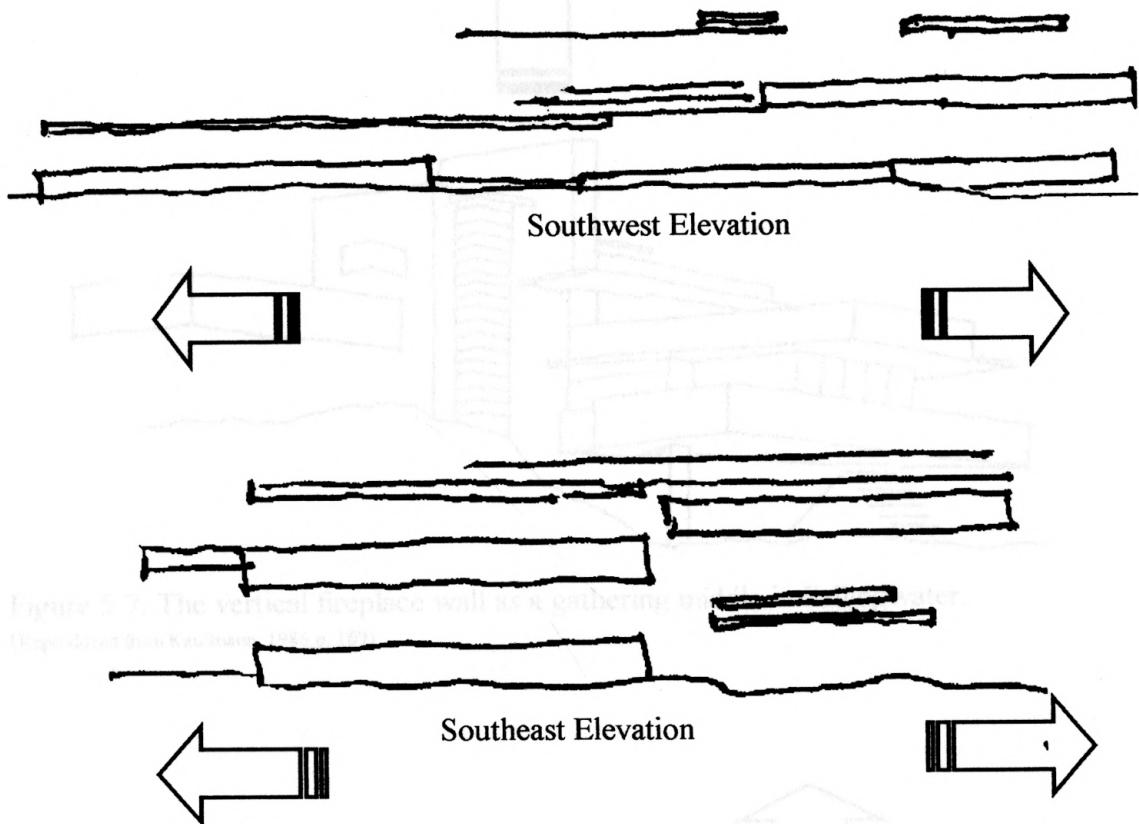


Figure 5.6 Horizontal elements in Villa Mairea.

Similar to Fallingwater, as figure 5.6 illustrates, Villa Mairea also predominantly assumes a horizontal dimension in its spatial flow and external form. This deployment of horizontal space becomes apparent as one walks through the main entrance to the living and dining rooms, then to the covered terrace and finally to the sauna. The monotony in the horizontal spatial flow is broken by a gentle difference in level introduced between the living area and the entrance hall. This difference in level between the respective rooms subtly suggests a sense of up and down. The twist and turn one needs to make while moving through the series of spaces is another design device method that breaks the monotony of horizontality.

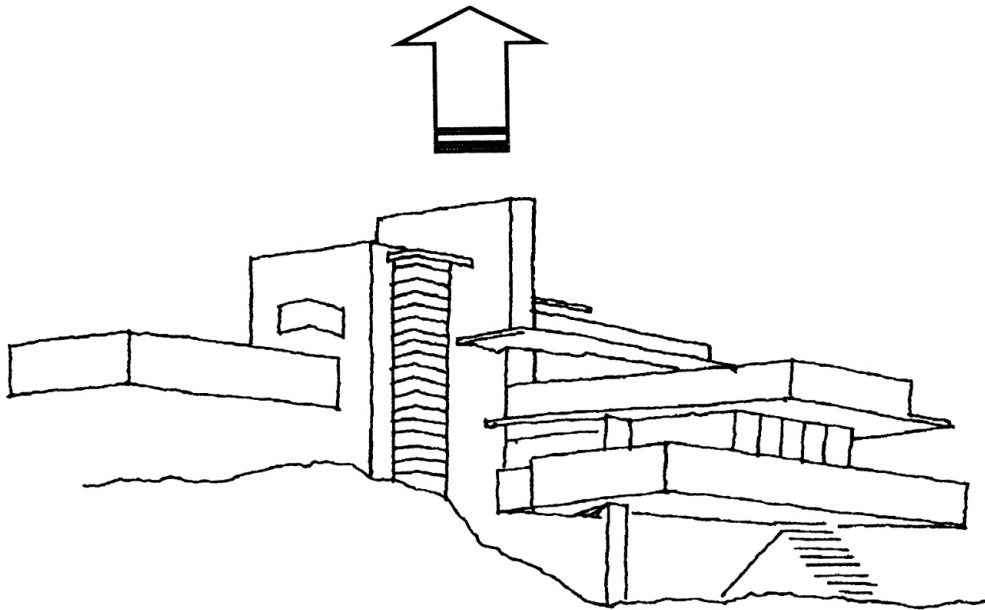


Figure 5.7. The vertical fireplace wall as a gathering middle in Fallingwater.  
 (Reproduced from Kaufmann, 1986, p. 169).

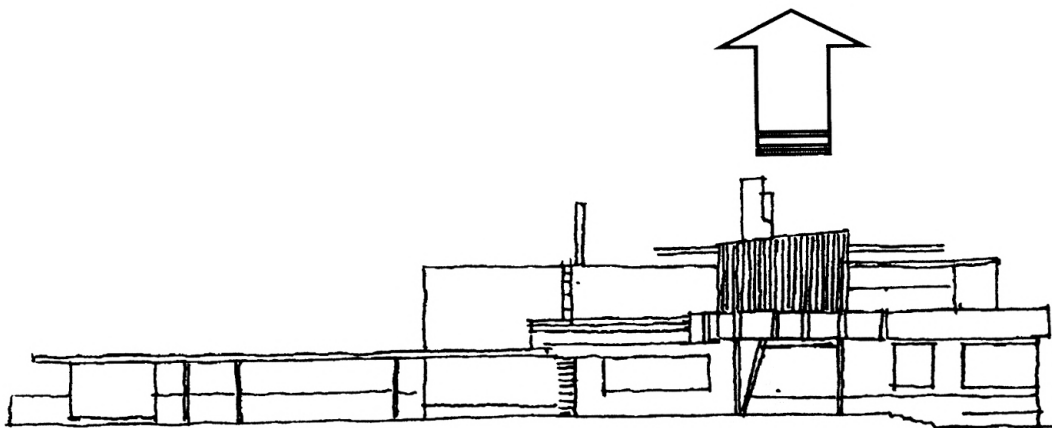
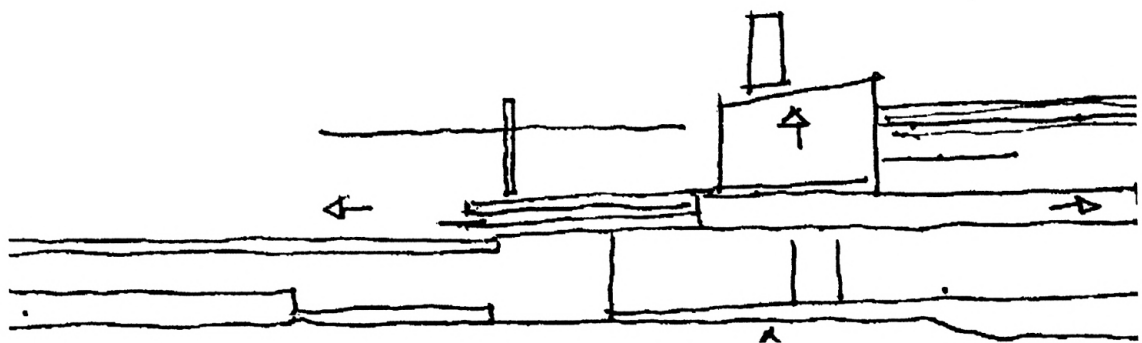


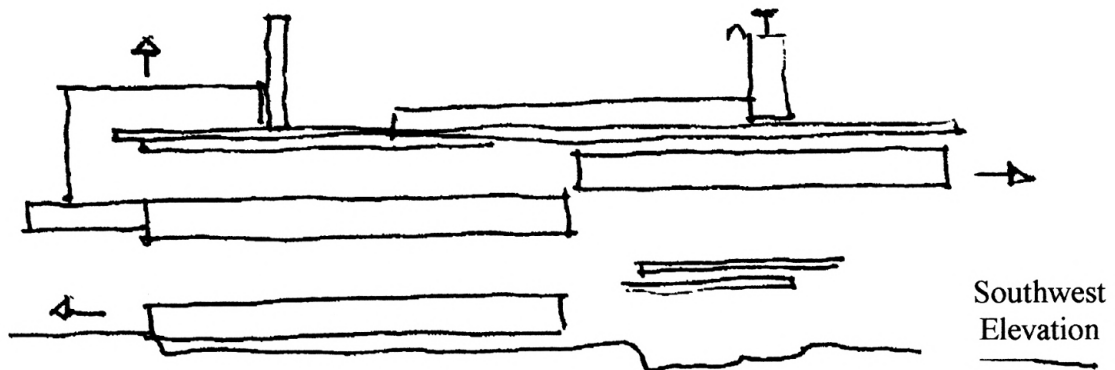
Figure 5.8. The studio wall treated with vertical slats as a gathering element in  
 Villa Mairea. (Elevation reproduced from Pallasmaa, 1998, p. 151).

The external form of Villa Mairea also reflects the internal nature of spatial arrangement. The whole volumetric form of the house emphatically expresses horizontality. The much higher proportion given to the breadth of the house over its

height pronounces the dominance of horizontality. Like Fallingwater, the early sketches of Villa Mairea had projecting horizontal balconies suspended in the air. In the final design, however, the projecting elements and deep recesses on the façade are absent. The effect of horizontality on the façade is rather attained by patterns of windows and use of different finishing materials.



Southeast  
Elevation



Southwest  
Elevation

Figure 5.9 Dominance of horizontality over verticality in Villa Mairea.



As figure 5.9 illustrates, the pattern of window arrangement on the respective facades of Villa Mairea accentuate the horizontality of the house. The rustic wood balustrade of the terrace above the dining room juxtaposed with the white modernist steel railings of the upper roof, and the wooden trellis above the narrow balcony of the studio and north east side of the living room (reminiscent of traditional farm construction) accentuate the horizontality of the house. The use of different materials on the exterior walls also creates a sense of depth for the façade. The southwestern corner of the music room including the studio wall is a good example of creating depth by the juxtaposition of a variety of materials and textures.

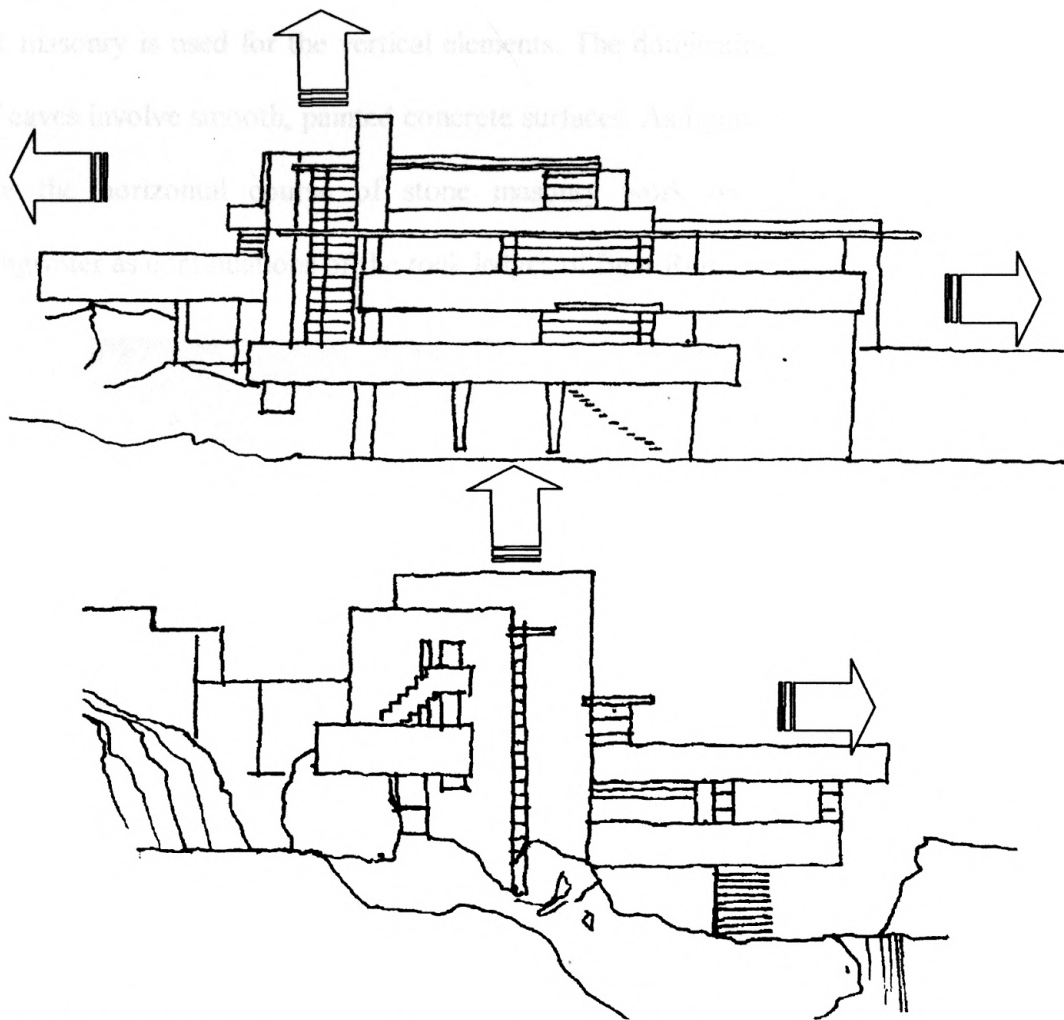


Figure 5.10. Balance between verticals and horizontals in Fallingwater.  
(Reproduced from McCarter, 1994, p. 50-51).

In Fallingwater, as figure 5.10 suggests, the juxtaposition of the vertical and horizontal together in the entry part of the house seems to establish a sound harmony for the composition of the house. Employing horizontal window frames where the vertical fireplace wall is located, and arranging the window frames of the living room and bedroom in vertical direction where the horizontal roof eave and concrete balconies are located, orchestrates the two contrasting dimensions into a unified whole. The horizontally laid stone masonry on the vertically accentuated gathering wall attains balance with the horizontal balconies. Wright here seems to clearly differentiate the vertical from the horizontal by employing different materials for each. In most cases, thick masonry is used for the vertical elements. The dominating horizontal balconies and roof eaves involve smooth, painted concrete surfaces. As figure 5.11 illustrates, one could relate the horizontal course of stone masonry work on the vertical elements of Fallingwater as continuations of the rock ledges of Bear Run.

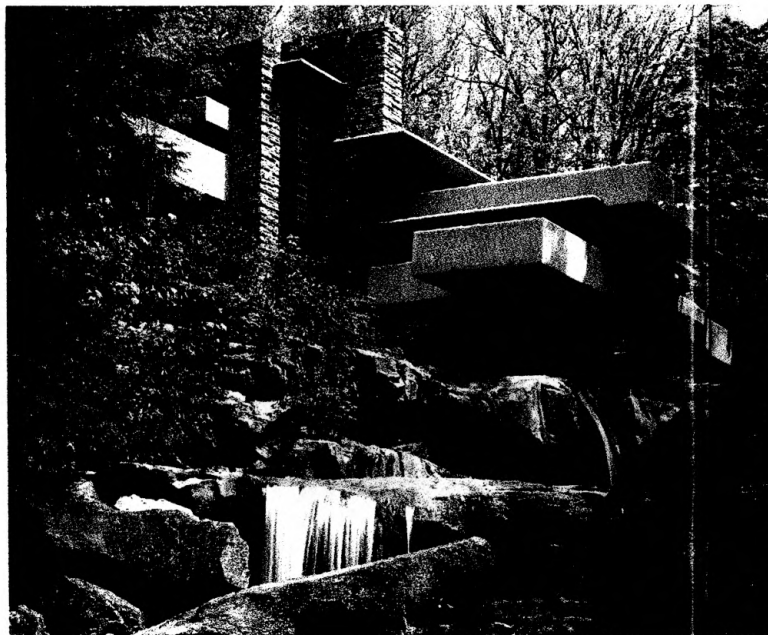


Figure 5.11. The horizontal course of stone masonry as a continuation of the rock ledges of Bear Run.

In Villa Mairea, verticality is subtly expressed by a gentle floor level difference in the horizontally stretching space of the living area, a pattern absent in Fallingwater. As Figure 5.12 illustrates, the interior detailing and decoration of Fallingwater echo the external horizontality of the building in the inside space. In Mairea, however, as figure 5.13 demonstrates, verticality is a dominant theme in the interior space. The spontaneous vertical rhythm of columns in the living area and non-structural vertical poles on the staircase and the entrance hall repeat the vertical forest rhythm. The free standing columns and the cluster of wooden poles express a strong vertical axis in the interior living space. It could be said that Villa Mairea's verticality is more boldly expressed in its interior than is its exterior.



Figure 5.12. In Fallingwater, the interior detailing of horizontal decorations on the walls and the stone masonry echo the horizontal expression of the exterior. (Kaufmann, 1986,p. 8).



Figure 5.13. In Villa Mairea, verticality is a dominant theme in the interior space, while horizontality is the major theme to the exterior. The spontaneous vertical rhythm of columns in the living area and non-structural, vertical poles on the staircase and the entrance hall repeat the vertical forest rhythm. (Pallasmaa, 1998, n. 83)

On the exterior, Villa Mairea's verticality is expressed in a rather subtle manner. The wooden strip cladding on the master bedroom terrace and on the studio's wall and balcony gently reflect the vertical rhythm of the surrounding forest. The spruce pole screen delineating the east side of the main entrance canopy and the lashed supports of the sauna bath are other elements that echo verticality. In short, Mairea establishes a

strong contrast to the vertical rhythm of the forest by its horizontality, while its details in the inside and outside subtly resonate vertically.

Similar to Villa Mairea, Fallingwater most broadly assumes a horizontal flow of space. The flow of space in the horizontal dimension is particularly apparent on the first floor where the stretch of the space is uninterrupted by any partitioning. Wright asserts that building planes parallel to the earth identify themselves with the ground. Wright perceived the horizontal line as the earth line of human life—i.e., the line of repose. This conclusion led him to remove partitions and open the space in the horizontal dimension. The exterior elevation of his houses also reflected these inner phenomena of horizontality by their stretching eaves, openings, walls, and balconies. This idea incorporated the freedom of space and elimination of useless heights.

This emphasis on the horizontal is in line with Wright's design intention for Fallingwater's lower floor. Wright severely criticized the trend of designing "interiors consist of boxes beside boxes or inside boxes called rooms. All boxes were inside a complicated outside boxing. Each domestic function was properly box-to-box" (Wright, 1954, p. 39). Therefore, Wright "declared the whole lower floor as one room" (ibid.) and eliminated all partitions and unnecessary doors by introducing screening to enhance certain domestic purposes. Wright's aim was not limited to the floor space only but also included the wall as well. As he included fewer doors, he also included fewer window openings but they are greater in area.

Layers of superimposed horizontal spaces establish a relationship of up-and-down, which constitutes a vertical axis. The up and down effect is experienced when one encounters the apparent danger created by the vertical height of the balconies as they

horizontally stretch over the waterfall. As figure 5.14 suggests, the elevated position offered by the terraces to enjoy unimpeded views to the horizontal expanse of the surrounding forest witnesses the establishment of a vertical axis as a result of up-down relationship. The stair that runs down from the living room to Bear Run is a strong architectural element that links up and down which, as a result, establishes a powerful relationship between the inside and outside through a vertical axis. In this sense, as figure 5.15 suggests, we can surmise here that, even though the dominant formal expression of Fallingwater seems horizontal, experientially it involves both horizontal and vertical dimensions: the horizontal—through the stretch of its space and terraces; the vertical—through the effect of up and down created by its layers of balconies.

Figure 5.14

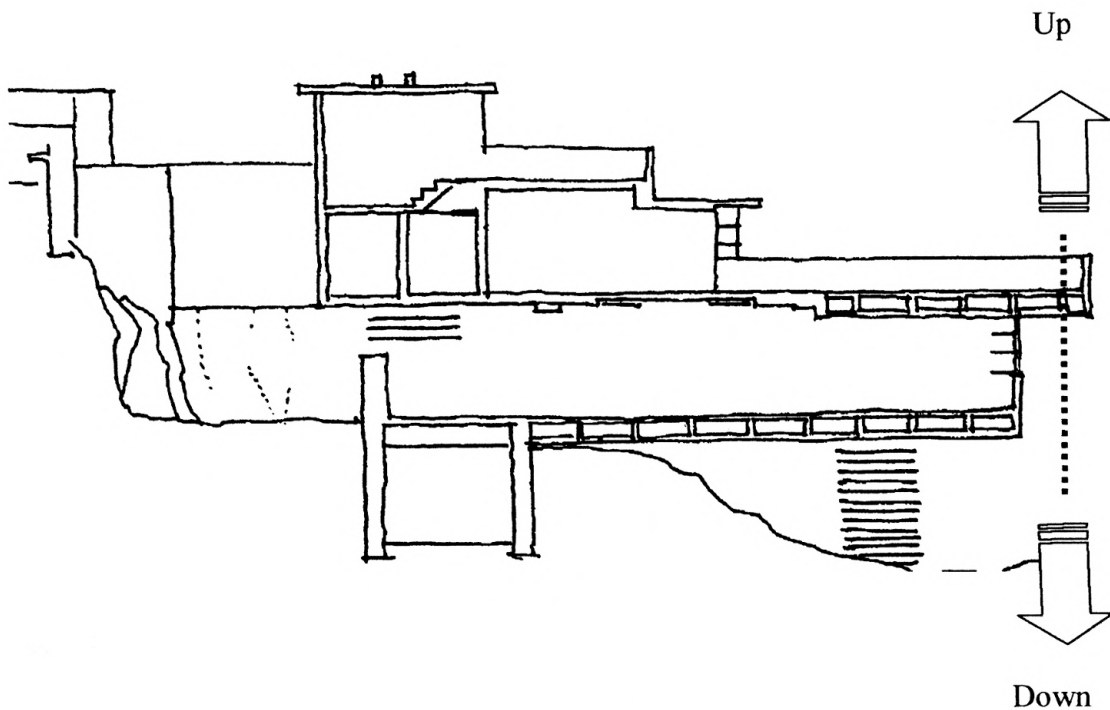


Figure 5.14. The strong sense of up and down in Fallingwater establishes a vertical axis. (Section reproduced from Kaufmann, 1986, p. 73).

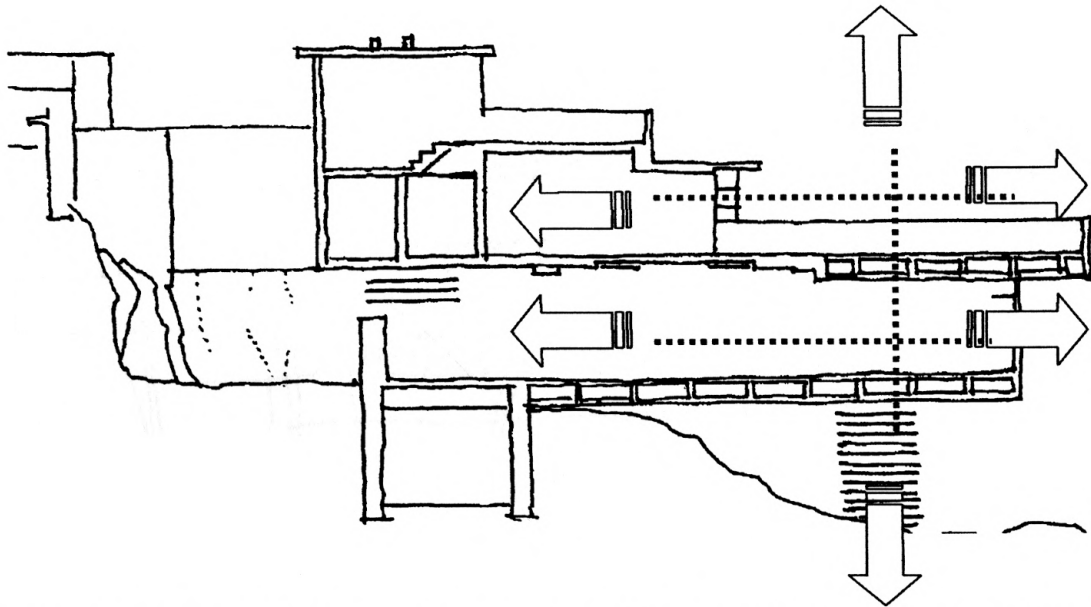
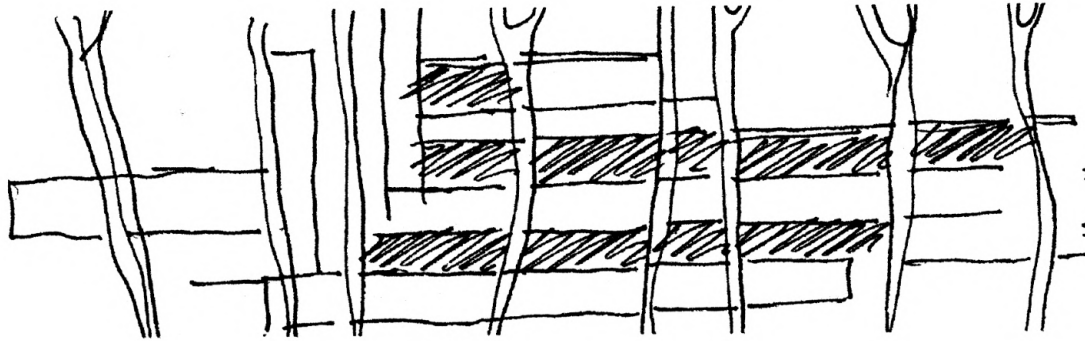


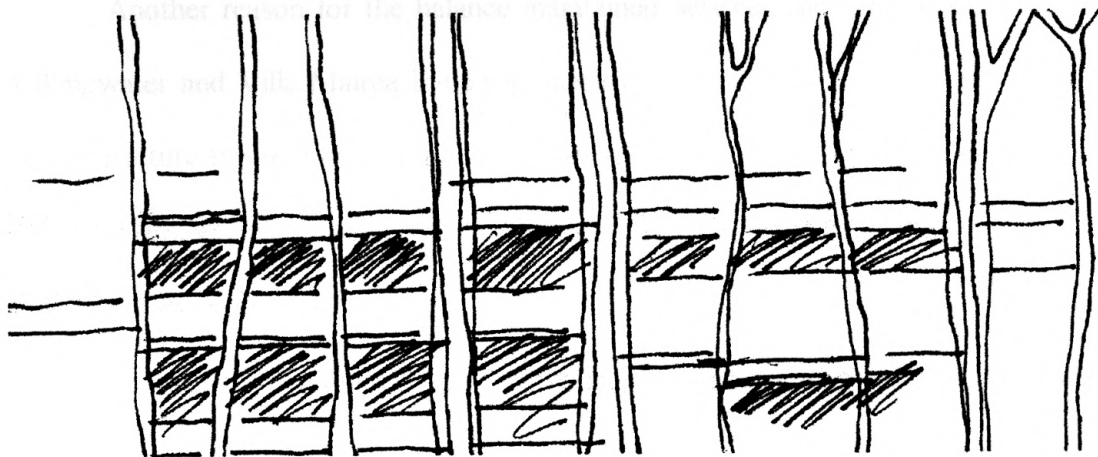
Figure 5.15. Though the formal expression of Fallingwater seems predominantly horizontal, experientially it involves both horizontal—through the horizontally stretching space and terraces—and vertical—through the strong sense of up and down generated by layers of balconies. (Section reproduced from Kaufmann, 1986, p. 73).

In contrast, the sense of up and down in Villa Mairea is not as strong as Fallingwater's. Even though there are balconies in Villa Mairea, the sense of hazard and uplift is not so powerful as for Fallingwater. As the strong sense of up and down and an element of hazard created in Fallingwater seem to be in response to its perilous site, the lesser emphasis given in the up and down relationship of Villa Mairea seems to be as well in response to the relatively flat site. Villa Mairea emphasizes a strong attachment to the ground, while Fallingwater asserts levity and freedom from the ground. Fallingwater lives between up and down while Villa Mairea stays down. Apart from their difference in the up-and-down relationship both houses have something in common in relation to their

respective sites. As figure 5.16 suggests, the horizontality of the two houses creates a strong interlace with the verticality of the surrounding forest.



Fallingwater's south elevation



Villa Mairea's southeast elevation

Figure 5.16 The horizontality of Fallingwater and Villa Mairea creates a strong interlace with the verticality of the surrounding forest.



It is interesting to ask how the vertical elements in Fallingwater and Villa Mairea could maintain a balance with the dominating horizontal members. One possible explanation is the fact that the vertical is more assertive than the horizontal (Harries, 1988). According to Harries the vertical gathers to conquer the scattering power of the horizontal. There is a consistency of functional and architectural expression in the gathering power of the vertical fireplace of Fallingwater. The fireplace is founded on the natural bedrock, which assumes a horizontal emphasis signifying our ties to the earth, security and restfulness; this becomes a focal point around which the family's life centers. It congregates and gathers the family to a unified life. In its external expression, Fallingwater's fireplace reaches upward, establishing a vertical axis in order to act as a gathering middle to the horizontal balconies. It's quite a remarkable consistency in function and expression.

Another reason for the balance maintained between the vertical and horizontal in Fallingwater and Villa Mairea is that we have a tendency to experience the vertical axis of architecture through our own bodies. Even if a strong horizontality is emphasized in a building, the presence of a single vertical element can more strongly attract our attention. The vertical axis, further, fulfills our innate need for a center in the expanse of indefinite horizontality. It as well responds to our spiritual tendency by connecting heaven and earth. From this point of view, Fallingwater's concrete balconies and Villa Mairea's white painted solid walls (that stretch in the horizontal dimension parallel to the earth) suggest our earth-bound mortal life, whereas Fallingwater's vertical stone masonry walls and Villa Mairea's wooden slat clad studio wall provide a center, rootedness and as well as a sense of immortality in the indefinite beyond.

## Center and Periphery

The last of Harries' natural symbols examined here is *center* and *periphery*. Jung (1964) writes that “the idea of center and periphery in spatial organization is perhaps universal. People everywhere tend to structure space—geographically and cosmologically with themselves at the center and with concentric zones (more or less well defined) of decreasing value beyond” (p. 266). The geometrical shape of a circle, as an ordering device, gives a sacred importance to a center. All secondary forces radiate from that point. Regarding the egocentric character of the core-periphery concept, Jung states that the circle “expresses the totality of the psyche in all its aspects, including the relationship between man and the whole of nature” (ibid.). In a specific way, the inner reality of a house, which is the vulnerable inner core, is protected by the periphery, which is the outer identity of the house presented to the world.

Harries (1988) writes that the human being's need for refuge within some enclosed space is not sufficient unto itself (ibid., p. 198). The need for a *center* is inseparable from our sense of home and is bound up with the requirement of human dwelling--i.e., the created inside needs to have a symbolic significance of center. Harries argues that every enclosed area or volume implies a center. This suggests that center and periphery are inseparable. Periphery is the boundary where the inside begins to exist. Without periphery there is no center. Center is the spot where we experience the absolute sense of insiderness. Periphery converges us to the center and the moment one attains the center, it begins to radiate outward again to the periphery.

Center is primarily a sense of insiderness while periphery is a threshold between inside and outside and determines whether the two domains tend to merge or entirely

separate. Physical elements are typically crucial in demarcating periphery, but they are not absolutely necessary to establish a center. Centers are either physical elements—like a fireplace—or they are spatial—like an open space powerfully defined by peripheral elements that gather the place in concentric circles to a single spot. Columns, walls, and unique architectural features can be peripheral elements. Concentric floor pattern is one good example in leading us to the center of a given space. In either case, we need elements that direct our attention to the gathering middle from which our sense of insiderness and at homeness emanates. In this sense, *center-periphery* becomes a major ordering natural symbol in explicating the inside-outside relationship of Fallingwater and Villa Mairea.

Both Fallingwater and Villa Mairea exhibit a powerful sense of center in their inside spaces. The centers of both houses are associated with fireplaces. Fallingwater, however, emphasizes a single center established around the living room's fireplace, whereas Villa Mairea indicates more than one center. There are four major fireplaces in Villa Mairea that are located in the living room, dining room, covered terrace, and first floor hall. All of them have something in common—they are positioned in association with circulation spaces where movement concentrates—especially arrival. Villa Mairea's powerful sense of center also gravitates to two larger-scale centers—the living room and the outside courtyard.

We have seen that peripheral elements are crucial in establishing a center. As figure 5.17 suggests, Fallingwater's sense of center is powerfully established by the fireplace on the west side, the two stone piers on the south side, and the solid masonry wall on the west side. Our attention toward the center is focused by two diagonal axes

constituted by the major peripheral features. The first diagonal axis is established between the main entrance and the southwest pier and the balcony beyond it. The relation between the fireplace and the stair that runs down to Bear Run establish the second diagonal axis. The spot where the two diagonal axes cross is the center where we powerfully experience the inside space and the surrounding features. It is a reference point where we feel centered and gain orientation to the outside.

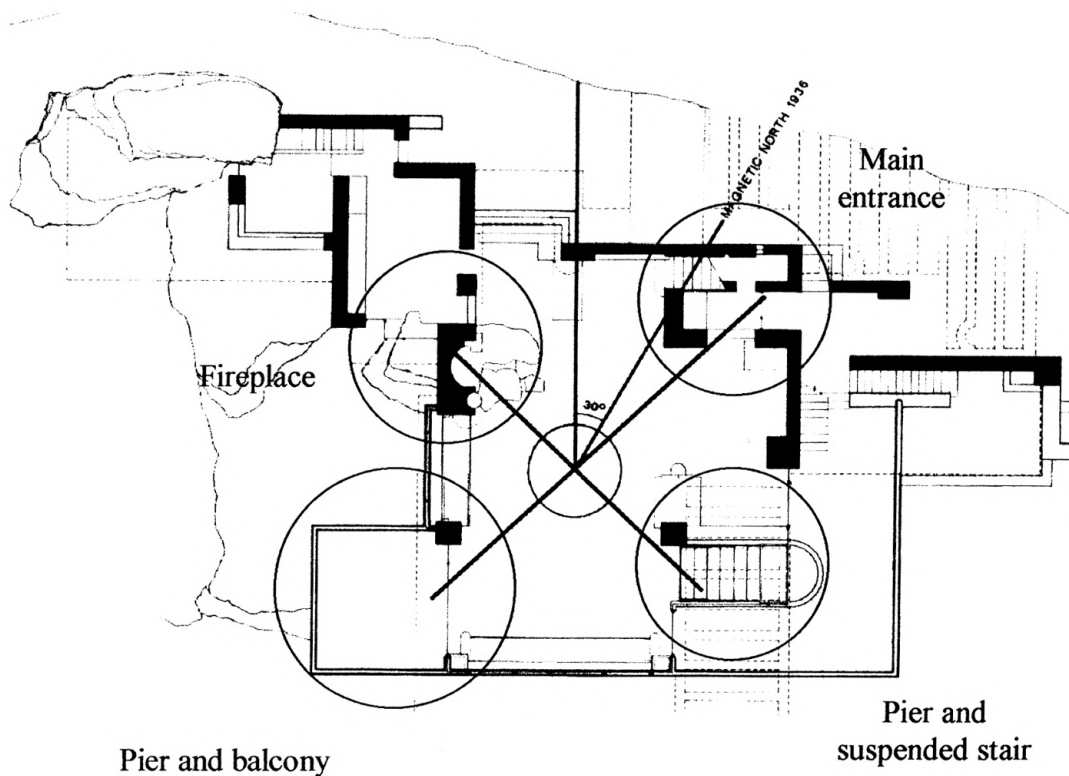


Figure 5.17. The intersection created by the two diagonal axes relationship between Fallingwater's main entrance and the southwest balcony punctuated by the stone pier, and between the fireplace and the southeast stair that runs down to Bear Run and punctuated by another stone pier establish a strong sense of center for Fallingwater. (Kaufmann, 1986, p. 73).

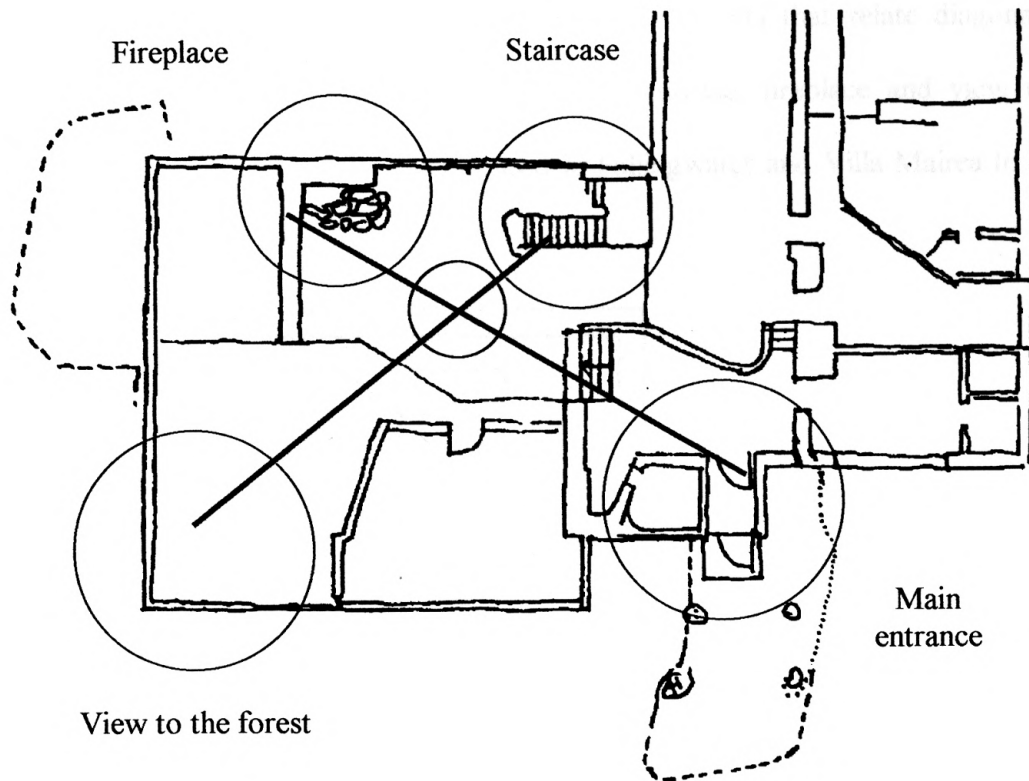


Figure 5.18. A center in the living room of Villa Mairea is created by the diagonal axis established between entrance and fireplace, main staircase and view to the outside. (Plan reproduced from Pallasmaa, 1998, p. 146).

Similarly, in Villa Mairea we find a spatial center created by the intersection of two diagonal axis that relate Villa Mairea's main entrance with the fireplace and the main stair that suspends down from the ceiling with south side view to the forest. Figure 5.18 demonstrates that, as we approach the living room from the main entrance through the entrance hall, our attention is diagonally drawn to the fireplace located a cross the room. The main stair adorned by vertical wooden poles establishes a strong visual link to the south side windows. These four major architectural features are strong peripheral elements that work in unison to gravitate our attention to the center of the living room. This area provides a sense of center to the inside space where reference and orientation

can be made to the outside space. In this sense, Fallingwater and Villa Mairea exhibit a striking similarity in their use of strong peripheral elements that relate diagonally to establish a spatial center. Furthermore, entrance, staircase, fireplace and view to the outside are common peripheral elements used in Fallingwater and Villa Mairea to create a center.

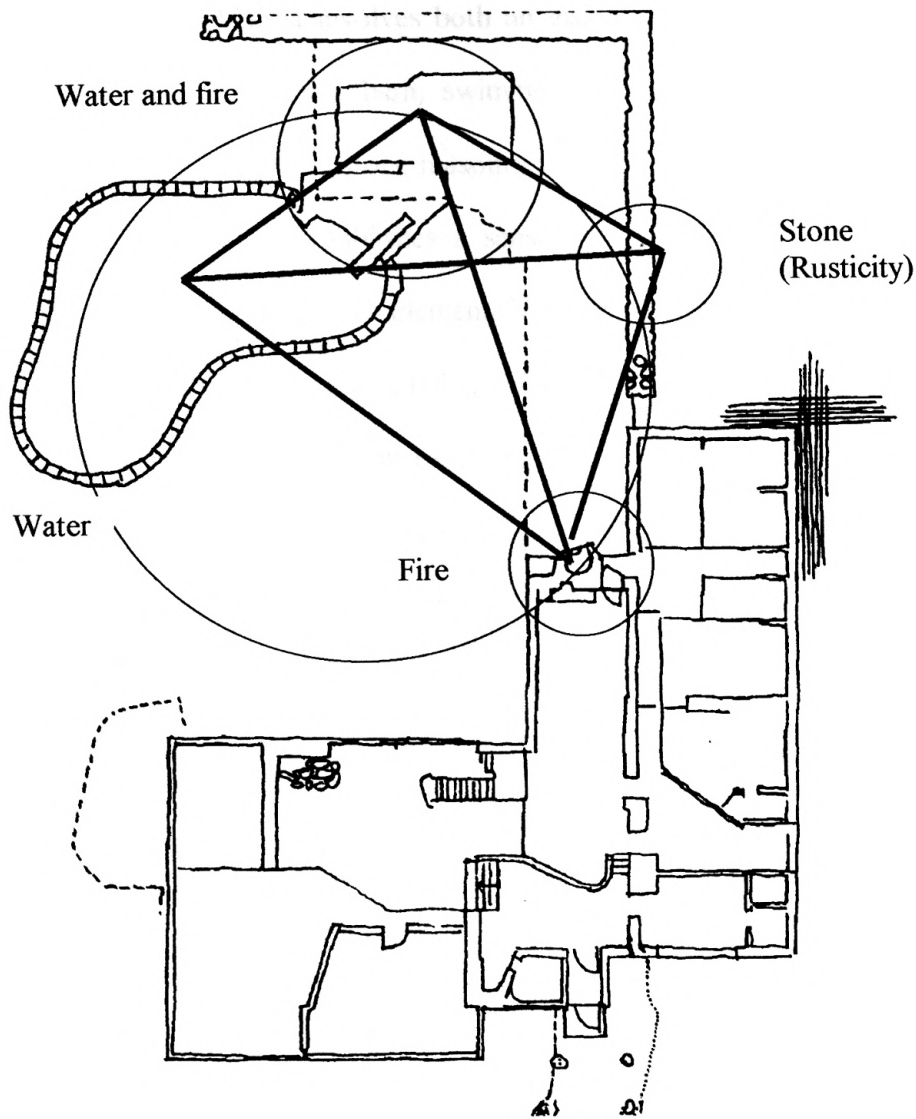


Figure 5.19. Villa Mairea's sauna bath, the swimming pool, the rustic fireplace, and the rustic stonewall are peripheral elements that establish a center in the middle. In this center, we feel inside and surrounded by nature's primordial forces—fire, water and rusticity. (Plan reproduced from Pallasmaa, 1998, p. 146).

In this regard, we can infer that a center is not necessarily subject to opacity as insiderness is. Centeredness accentuates insiderness but a sense of center is strongly created by powerful peripheral elements that initiate a strong impulse of motion, direction and repose rather than static solid walls.

In Fallingwater, the relationship between center and periphery is limited to the inside, while Villa Mairea involves both an inside and outside. As figure 5.19 suggests, the traditional Finnish sauna bath, swimming pool, rustic fireplace that turns its face toward the sauna, and rustic stone masonry wall that runs to the sauna are the four strong peripheral elements that establishes a sense of center and periphery in Villa Mairea's outside space. The peripheral elements constitute a powerful boundary that evokes nature's primordial forces. By standing within the boundary of these peripheral features, one finds himself surrounded by elements of nature—by fire, water, and rusticity. The center created in Villa Mairea's inside space is established by human-made features but the sense of center and insiderness created in the outside courtyard space is constituted by nature's own elements. In this sense, Villa Mairea seems to be richer than Fallingwater in using natural elements to create a sense of center and insiderness in the midst of the outside.

What I have discussed so far relates to how centers are spatially created in the two houses. But as we discussed earlier, a center is also established by physical elements. In both Fallingwater and Villa Mairea a fireplace is used as a physical element to establish a center. The fireplace acts as a center in Fallingwater as "a force holding" the house together. Harries calls this center a "zone of absolute reality." This coincides with Wright's intention of making the fireplace as a central element of a house where the life

of the family focuses. Wright proposed “a place for a real fire” instead of a number of conventional brick chimneys that unnecessarily crowd a house. He argued for one or, at most, two integral fireplaces that would become an important part of his houses. “It comforted me”, Wright said, “to see the fire burning deep in the solid masonry of the house itself. A feeling that came to stay” (Wright, 1954, p. 37).

In contrast to Fallingwater’s central fireplace, Villa Mairea has five fireplaces—in the living room, dining room, bedroom hall, studio and the outdoor terrace—which each establishes a unique sense of center to its immediate surrounding. The fireplaces in the living room and bedroom hall are located at particular spots where anyone stepping to each floor directly encounters them and is reminded of the warmth, comfort and the safety of the inside. In this sense, these fireplaces act as hubs of the houses.

In the preceding two chapters I have examined Wright’s Fallingwater and Aalto’s Villa Mairea through Harries’ five natural symbols—inside-outside, light-dark, horizontal-vertical, up-down, and center-periphery. The inside-outside was examined through the idea of in-betweenness, interpenetration and intermingling, which illustrated the strong contrast between the inside and outside relationship of the two houses, and how a smooth transition from one domain to another is achieved. Light and dark in the design of Fallingwater and Villa Mairea has played a big role in creating a tempered interior and exposed exterior that directly affects the sense of insideness and outlook to the outside. We have seen as well that the play of light determines the formal expression of the two houses in terms of something and nothing.



The expression of the two houses in terms of the horizontal-vertical relationship suggests the dominance of horizontality over verticality. However, in both houses the dominant horizontality is gathered into a unified totality by the strong vertical elements. The expression of up and down is also discussed along with the vertical axis. Fallingwater, through its perilous architecture, generates a strong contrast of up and down while such expression is not as strong in Villa Mairea. The discussion of center and periphery has brought into light how exactly a sense of insideness and centeredness is created in the two houses rather than a mere wall that simply segregates the inside from the outside space.

The level of contrast demonstrated by the two houses, however, is not only limited to the five pairs of natural symbols emphasized here, but also includes additional themes like wet-dry, and something-nothing. The surrounding forest of both houses, the river at Fallingwater, the sauna and the swimming pool at Villa Mairea evoke a damp, dark, cool and tempered atmosphere in contrast to the dry, warm and well lit insides of the two houses. The interplay of solid volumes with deeply recessed windows and transparent glass surfaces establish a contrast between “something” and “nothing.”

In the next chapter I present my own interpretation of the two houses using Thiis-Evensen’s architectural archetypes, which help us to explore how the natural symbols just discussed find their concrete architectural expression in the two buildings. The three existential qualities of motion, weight and substance in particular enable us to better understand how the natural symbols speak to us.

## CHAPTER 6

### INTERPRETING THE FLOOR OF FALLINGWATER AND VILLA MAIREA USING THIIIS-EVENSEN'S ARCHITECTURAL ARCHETYPES

In the previous two chapters, I have presented an interpretation of Fallingwater and Villa Mairea using Harries' natural symbols. In this and the next two chapters, I use Thiis-Evensen's theory of architectural archetypes to examine the two houses. This interpretation can be seen as a continuation of Harries' theory of natural symbols because what archetypes in architecture basically do is help us to explicate the already discussed natural symbols as they find their concrete architectural expression in the two buildings. Thiis-Evensen introduces us to the *floor*, the *wall* and the *roof*, which he says are the basic grammar of architecture and support a universal architectural expression.

Thiis-Evensen writes that these archetypes—although they do different things—accomplish fundamentally similar ends. They are all delimiting elements that create an inside in the midst of outside: the *floor*, through above and beneath; the *wall*, through within and around; and the *roof*, through under and over. These delimiting elements are evaluated in relation to their principal role of protecting an interior space from or opening it to an exterior space (Thiis-Evensen, 1987, p. 19-21). Thiis-Evensen presents *motion*, *weight*, and *substance* as the three experiential concepts essential to the description of how the three delimiting elements close or open between inside and outside.

The emphasis Thiis-Evensen gives here to the inside and outside relationship is parallel to Harries' natural symbol of inside-outside, which we already identified as a major theme directly or indirectly influencing and influenced by other natural symbols

like dark-light, horizontal-vertical, and center-periphery. Thiiis-Evensen's theory further provides us an opportunity to explore the inside and outside relationship of the two houses in more detail through the three existential expressions.

In this chapter, I examine how the floors influence the inside-outside relationship of the two houses. The interpretation of the floor of the two houses is presented under four sections which include the natural floor, the floor materials, motion and stairs. The sections are organized in terms of the three existential expressions of motion, weight and substance.

#### **a. The Natural Floor of the Two Houses**

As figure 6.1 demonstrates, the natural floor of Fallingwater's site has a sinking effect towards the bank of Bear Run. As the course of the stream turns southwest, the elevation of the ground further drops, creating more depth in a cascading fashion. The interior floor, on the contrary, never follows the sinking terrain of the natural floor of the site but remains flat. In this sense, the floor of Fallingwater features both the *attached* and *detached* types of the supporting theme. The northern end of the house that covers the area of the main entrance, the kitchen, servant's quarters, and a portion of the dining hall are all attached floors strongly anchored to the natural ground. The remaining part of Fallingwater's living room is a detached floor divorced from the ground.

Being physically raised from the ground and projecting over the river, Fallingwater's floor is liberated from the depths beneath and declares its independence over the mass of nature's floor. This elevated floor establishes an up and down relationship with its foreground. The upper position attained by the house offers a feeling

of superiority over any possible danger and an unimpeded view towards the surrounding landscape. By detaching the floor, Wright was able to free the building and give it an air of dynamic motion over the landscape (Thiis-Evensen, 1987, p. 57). The uplift of the floor from the ground allows the landscape to freely pass beneath the house undisturbed.

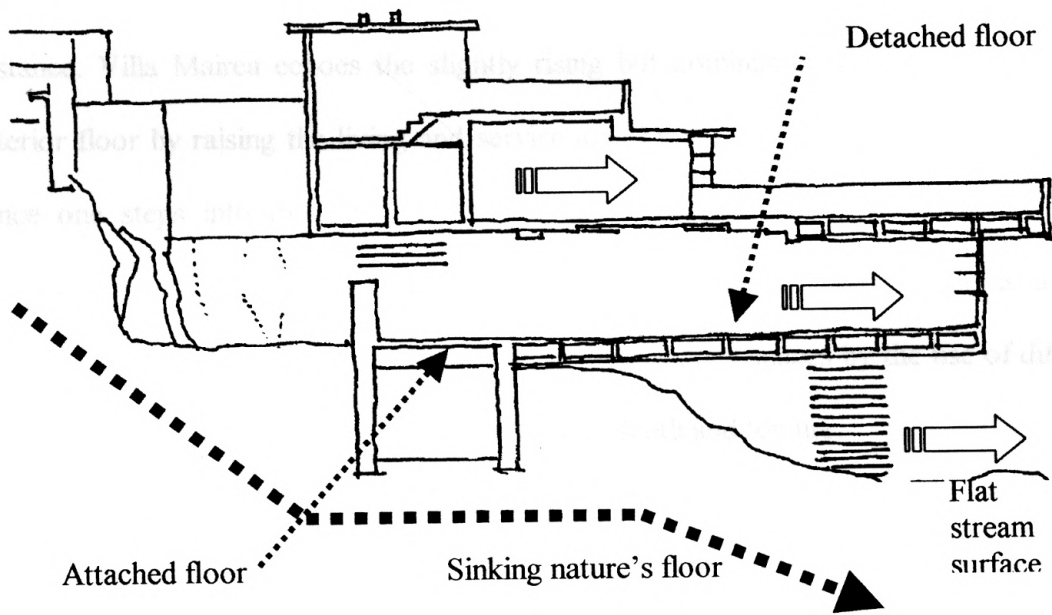


Figure 6.1. The relation of Fallingwater's floor with natural floor.

(Section reproduced from Kaufmann, 1986, p. 73, 96).

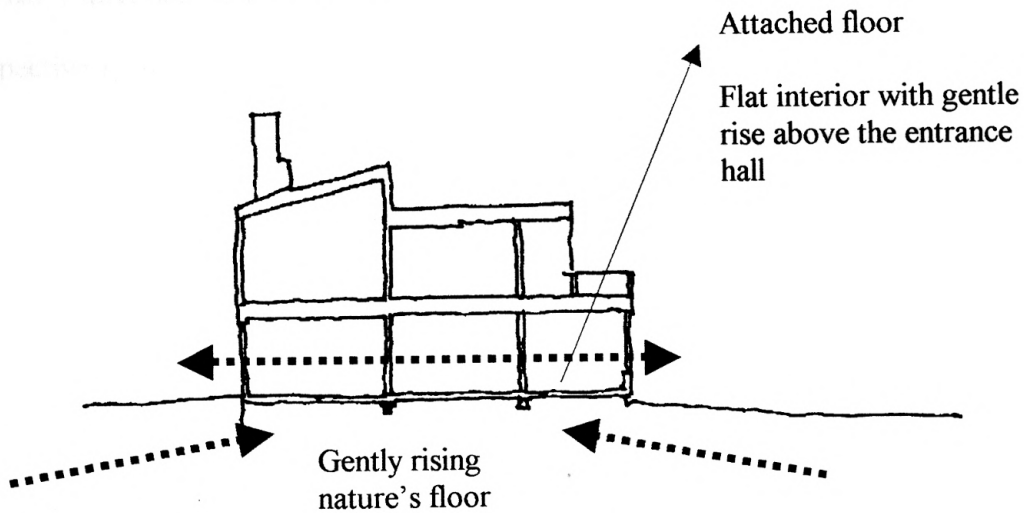


Figure 6.2. The relation of Villa Mairea's floor with natural floor.

(Section reproduced from Pallasmaa, 1998, p. 150).

In contrast to Fallingwater's dominantly detached floor, Villa Mairea's floor is an attached floor. Villa Mairea, unlike Fallingwater's perilous site, is located on top of a gentle hill within a clearing cut in a pine forest. As figure 6.2 illustrates, the natural floor of the site gently rises up above the surrounding landscape. The natural contour of the terrain is so gentle that the spot where the house rests seems flat ground. It is practically difficult to feel the slope of the site at a close range unless one sees it from a long distance. Villa Mairea echoes the slightly rising but dominantly flat natural floor in its interior floor by raising the living and service area by few steps above the entrance hall. Once one steps into the living room, the rest of the floor remains flat and planar. Although there is no level difference between the living area and the other rooms, a sense of boundary and definition is introduced to respective floor spaces by the use of different floor finishing materials that create a difference in depth and texture.

The architectural expression of Fallingwater and Villa Mairea reflects the strong relationship the two houses have with the natural floor of their respective sites. Both houses enhance the natural floor and its setting rather than going against it. The rusticity, formal expression and material detailing of the two houses is largely driven by their respective natural floors. Fallingwater's hovering floors spread out in every direction to resonate with the depth and the movement of the stream, and the overlay of the rock ledges. The dynamics of the building are driven by the elements of its natural floor. In this sense, Fallingwater brings the perilous nature of the site into existence, while Villa Mairea enhances the calmness of its own site. In this sense, Villa Mairea accentuates the tranquility of the site instead of disturbing its silence, which as a result brings the dampness, coolness, and repose of the natural floor to life.

In short, both houses inherit their architectural expression from the natural floor. The houses emerge from their respective natural sites to become a living architecture. The houses and the sites live together, integrate each other, and speak to each other. Fallingwater and Villa Mairea bring their respective site into existence, glide with it, and ultimately disappear into it.

### **b. The Floor Materials and the Two Houses**

The idea of defining floor space by the use of different material and color is one feature of a delimiting floor theme. For example, the use of a rustic stone finish for Villa Mairea's flower garden room, wooden finish for the music room, carpet for the library and polished tiles for the living and dining rooms "marks a specific floor zone by separating a smaller area from a larger" and this arrangement "creates a stationary situation by keeping us either in a centralized position or contain us within a boundary" (Thiis-Evensen, 1987, p. 47).

Unlike Aalto, who used various floor-finishing materials for Villa Mairea, Wright consistently uses a single type of floor finishing for the Fallingwater's rooms. The very decision Wright made to use waxed flagstone as a finishing material provides a safe stepping ground over a perilous structure. As figure 6.3 illustrates, the appearance of heaviness and non-geometric pattern of the flagstone flooring resembles the outside natural floor and gives an impression of an attached floor, while practically the flagstone is a detached floor for the most part. The sense of security is psychologically derived from the nature of stone itself because "stone is a part of the ground itself and emphasizes our conception of the ground as something firm and immovable and conveys the feeling

of a solid footing” (ibid., p. 51). Thiis-Evensen further writes that stone gives a sense of security by its quality of strength and dependability. By providing unshakable and permanent support, it reflects the enduring quality of nature. When the stone is used in its crude and untouched state it a strong association with nature’s own floor (ibid., p. 53).

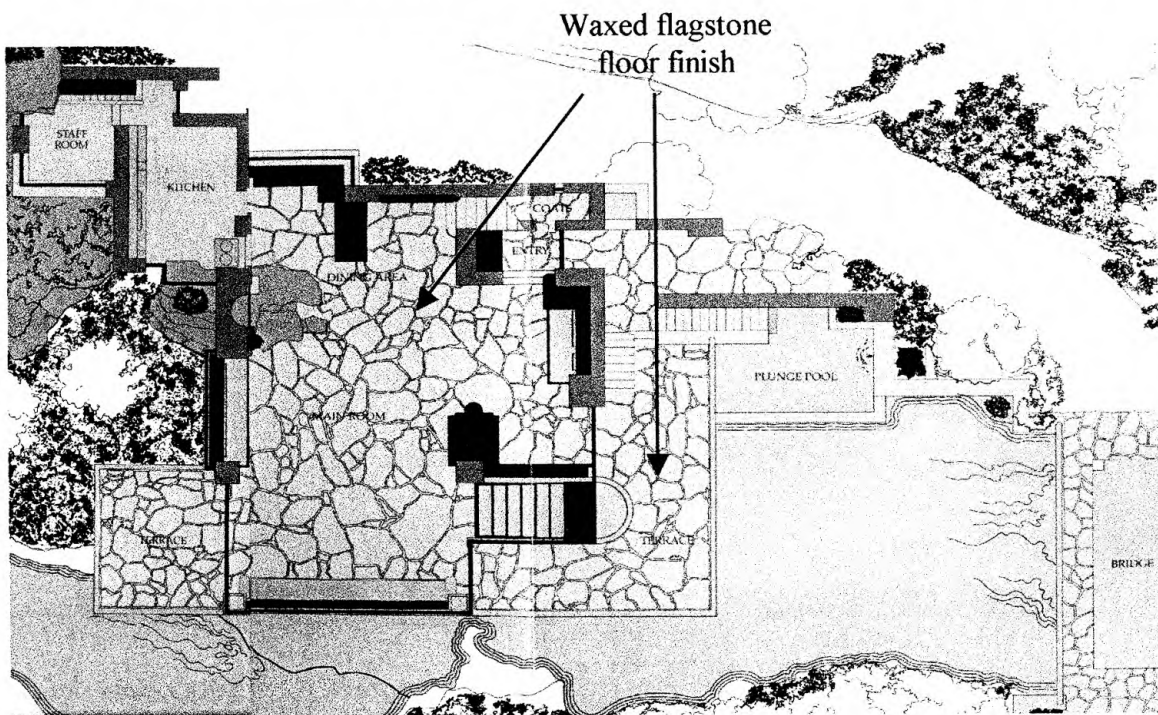


Figure 6.3. Fallingwater’s waxed flagstone floor finish.(Kaufman, 1986, p. 91)

The floor surface starting from the place where it is anchored to the ground up to the part it is divorced from the ground doesn’t make any level difference to reflect the sinking effect of the natural floor beneath. Rather, the continuous flat surface of the floor hovering above Bear Run conceals any clue of depth beneath, thus suggesting safety over apparent danger. Further, the presence of the natural boulder rock in the interior floor of the living room as the foundation of the fireplace gives an impression that the house is strongly anchored to the ground. One derives a strong sense of security from the natural

boulder rock that appears to give a firm and permanent footing to the house. This-Evensen writes that, “the visible bedrock is important psychologically in an otherwise bold and perilous architecture. This peril lies in the wild and steep, craggy surroundings above which the house hovers” (ibid., p. 55).

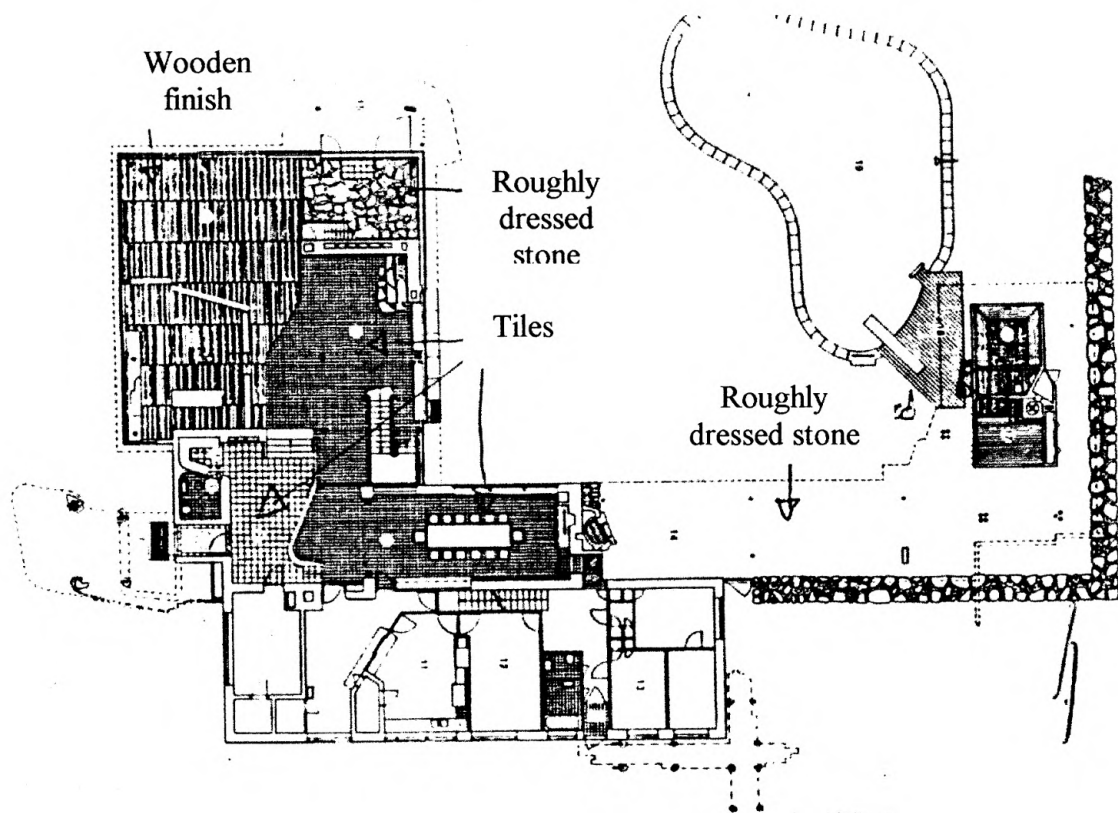


Figure 6.4. Villa Mairea’s floor treated with various finishing materials. (Pallasmaa, 1998, p. 146).

Similar to Fallingwater’s flagstone floor finish, Villa Mairea’s flower room floor is finished by roughly dressed rustic stone. As figure 6.4 illustrates, the non-geometric pattern of the stones is non-directional. As one steps into the flower room, he has the feeling that he is entering a lower floor level in relation to the wooden finish of the living room that feels lifted and detached from the ground because rusticity, as a phenomenon



of the ground, is related to down, and down is something elemental and unformed. As discussed with Fallingwater, the rustic floor of the flower room in Villa Mairea marks a firmly anchored interior. The floor finish of the outside terrace at the west side of the flower room is of similar material, therefore eliminating the difference between the interior floor of the flower room and the outside nature's floor.

Aalto is consistent in using rustic stone flooring for the entrance canopy and the covered terrace leading to the sauna. The rounded stone footings that jut upward to provide a base for the lashed supports of the entrance canopy and sauna terrace roof depict the influence of a traditional Japanese garden. "These rounded stones, which are deeply imbedded in to the ground are meant to express the ground's elements of security" (ibid, p. 53). In short, Aalto's use of stone flooring in the inside space and in-between places strongly emphasizes the connection of the inside space with the outside nature's own floor.

Similarly, the waxed flagstone floor of Fallingwater establishes a relationship to the outside at least in two ways. The use of stone on the interior floor marks a firmly anchored center whereby the element of security is emphasized (ibid., p.5 3). At the same time, the irregular and non-geometric pattern of the roughly cut flagstone floor highlights the similarity between the inside and outside, eliminating any difference between the interior floor and nature's floor. Thiis-Evensen writes that " the bedrock, fireplace and chimney are the inside that makes expansion to the outside psychologically possible" (ibid., p. 55). The use of coarse stone flooring creates rusticity. And rusticity is one of the phenomenon of the ground as "elemental and unformed" nature of the ground (ibid., p. 77).

Second, the waxed flagstone floor of the interior establishes a stunning similarity with the surface of the stream beneath. As figure 6.5 illustrates, the waxed finish of the flagstone appears wet and simulates a texture of water surface. In this sense, the inside is metaphorically related to the outside. Moreover, Fallingwater's floor elicits a contrasting experience of uplift and descent. We feel uplifted on the elevated floor as we enjoy an unimpeded view to the outside. In contrast, the wet-looking floor makes us feel that we are standing in the lowest ground level. This is because of water as a phenomenon of the earth. Thuis-Evensen writes that “in nature itself, the lowest point of the existential level is the water surface—beneath it are the depths, the nether regions” (ibid., p. 79).

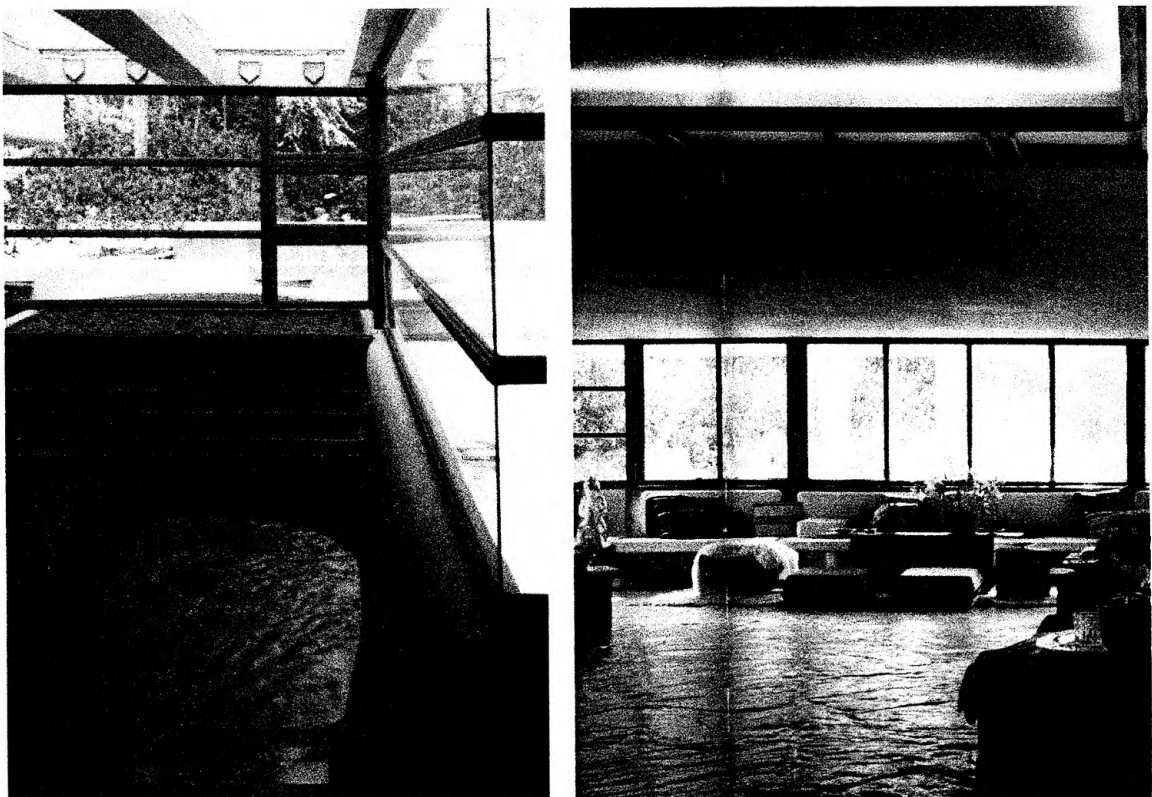


Figure 6.5. Fallingwater's waxed flagstone floor finish strikingly resembles Bear Run.  
(McCarter, 1994, p. 41)

Whereas Fallingwater's wet-looking floor is a metaphorical representation of the outside in the inside space, Villa Mairea's highly polished tile floor finish of the living and dining room creates a quality of reflecting floor: "It reflects objects in a lively interchange of light and shadow and not in exact and comprehensible forms" (ibid, p. 67). As figure 6.6 demonstrates, the reflecting tiles have contributed brilliance, motion and expansion to the interior space. In regard to the inside-outside relationship, the reflecting floor plays important role by enlarging the inside space of the living area, which seems to inherit the quality of outsideness. The structural columns and furniture of the room seem to be optically detached and freed from the floor, and it appears that they stand only on their own shadows. As a result "the floor seems to be non-supporting and thereby increases the detached air of the objects" (ibid, p. 67).



Figure 6.6. Villa Mairea's living room reflective tiles optically detached the columns and the furniture from the floor; these elements appear as if they stand only on their shadows. (Pallasmaa 1998 p. 107)

Although Villa Mairea's built floors are of a different material, carpeting is extensively used over the reflecting tile floors of the living and dining room, wooden floors of the library, and music room. Referring to the different style of living in the cold part of the world, Thiiis-Evensen elaborates how the carpet is so important as a floor finish in Nordic countries (ibid., p. 61). Carpet is used to define a particular place and to emphasize the difference between inside and outside. Thiiis-Evensen writes that " We are filled with an immediate feeling of security when faced by a crackling fireplace with a thick wool rug in front of it- we are really inside. It is the fire that warms us physically, but it is the rug that invites us to settle down and conveys a psychological feeling of welcome and warm well-being".

Further, " the carpets are not placed haphazardly but always where one sits, eats or converses. In this way the carpets create small enclosures, and space within a space, exactly suited to more intimate groups" (ibid.). Besides, the carpet provides warmth and absorbs sound. Concerning the effect of sound in an interior space, Thiiis-Evensen writes that "resonance opens a space, whereas muffled sounds close it and draw it inwards" (ibid.). In Northern countries, therefore, the carpeted floor is synonymous with a cozy, intimate interior.

### **c. Motion and the Floors of the Two Houses**

The way the two architects created the interior spaces of the two houses and treated the floors with different finishing materials also generates a contrasting sense of motion. As figure 6.7 suggests, Fallingwater's first floor is created as "one big room" without partitions. The shape of the space is more squarish, and the floor is treated with

non-directional pattern of the waxed flagstone stones. As a result, the whole space is pulled together and gathers around the middle. The floor remains without motion but subtly gravitates our attention towards the center of the room. In short, the static nature of the floor strongly emphasizes a quality of centeredness.

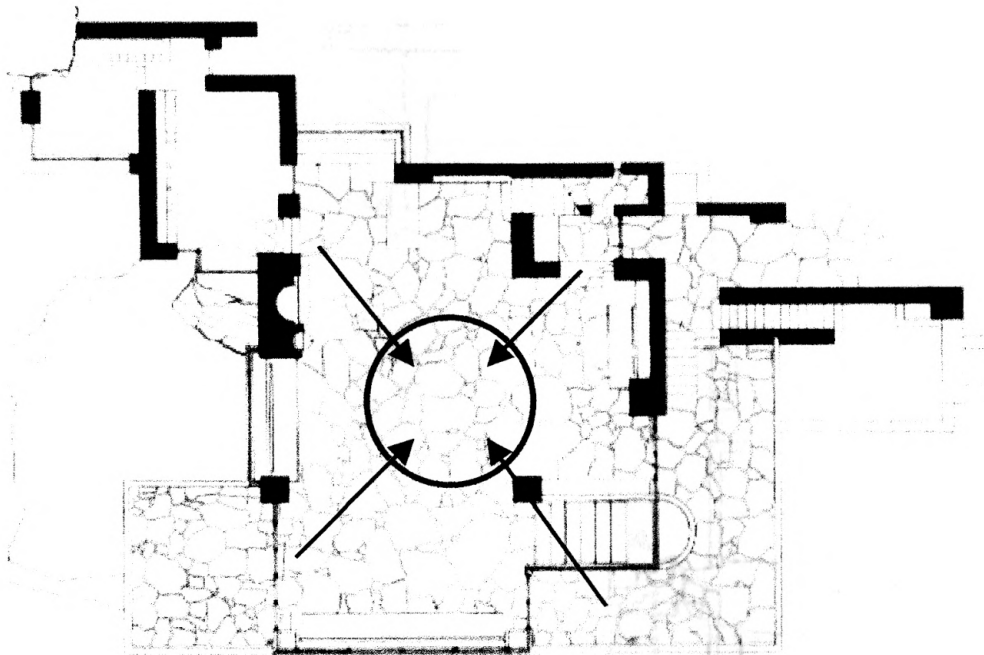


Figure 6.7. Fallingwater's non-directional floor patterns the shape of the space as one big room emphasizing centeredness and repose.  
(Plan reproduced from Kaufman, 1986, p. 116)

In contrast, Villa Mairea's first floor emphasizes the directional theme in that the entire first floor involves a strong sense of meandering motion that leads the visitor from the entrance up to the sauna bath. This sense of motion is created by an elongated plan; the arrangement of spaces and subtle elements like short walls and floor finishes. As figure 6.8 suggests, entering the house through the main entrance, a visitor encounters a strong axis that extends across the living area to the fireplace of the dining hall. Actually,

the axis continues to the covered terrace despite the obstruction of the north end wall of the dining wall. Movement in this straight axis is, however, impossible and the visitor is guided to the living room in a diagonal direction by a slanting short wall and the few steps that follow it. To go to the flower room, music room, and dining room, one needs to move in a diagonal direction that provides striking oblique views to the interior.

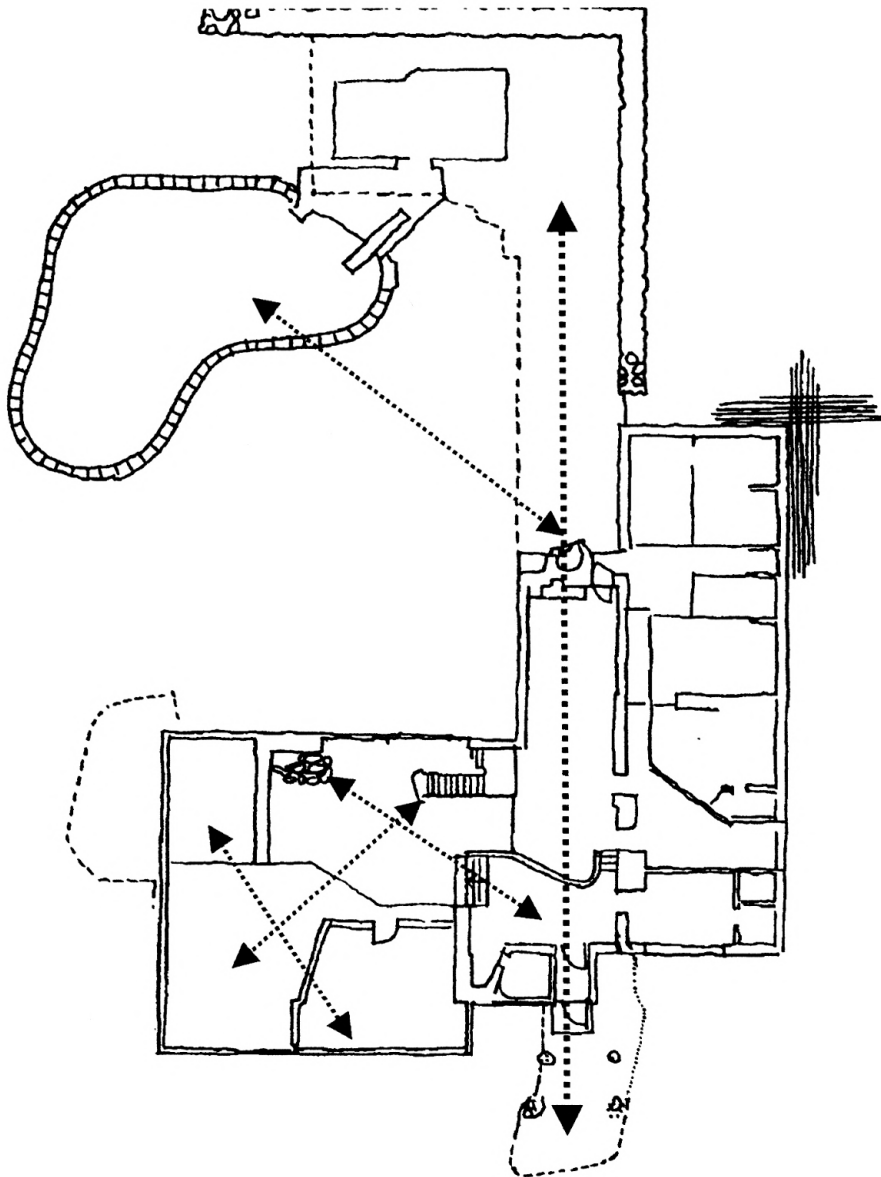


Figure 6.8. The arrangement of spaces and floor treatment in Villa Mairea generates movement in Diagonal axis (direction). (Plan reproduced from Pallasmaa, 1998, p. 146).

#### **d. Stairs and the Two Houses**

Stairs are another crucial directional theme of the floor that need to be discussed here, since both houses have unique stairs that relate to each other in their appearance and architectural expression. The stair that leads down to the river from Fallingwater's living room is one unique element of the directional theme. As figure 6.9 illustrates, the last tread of the stair is suspended just above the surface of the stream. This stair appears to have no functional necessity and suggests an intention that transcends common use. The prime purpose of this unusual stair seems to be creating a connection of interior space with the exterior. The interior of the house is led out and down into the stream, therefore the stair is not only the means for physical access to the river but also a channel to bring the river into the inside.

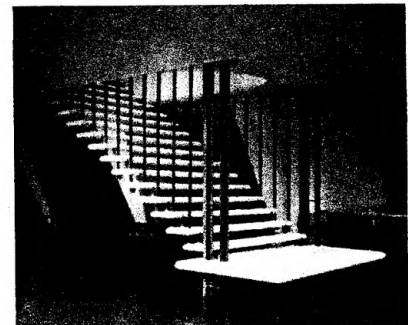
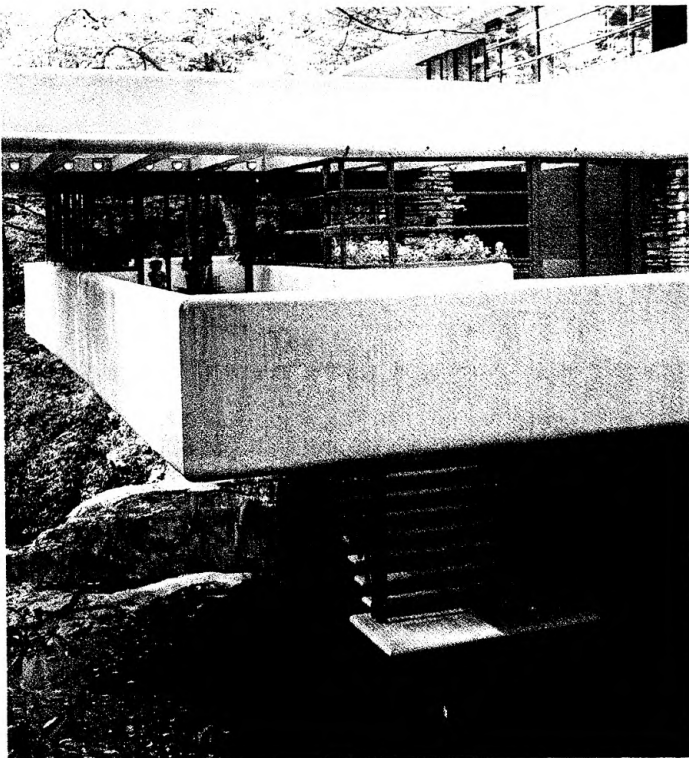


Figure 6.9. Fallingwater's hovering first floor longs to touch the ground by its stair that runs down to the Bear Run. This stair directs us from the safe inside to the exposed outside with a potential expression of hazard and humility (Kaufman, 1986, p. 100)

Second, The stair further triggers an impulse to go down and physically experience the river. Thiis-Evensen writes that “ stairs are the connecting link between below and above. To go up conveys a feeling of reaching something, whereas to go down gives the feeling of leaving something. Stairs concentrate a conflict between potential humility and potential exaltation” (ibid., p. 89). On the one hand, as a linkage between what is above and below, the stair seems to pull the independent and liberated floor back to the ground. This stair, on the other hand, expresses a desire of the uplifted floor to keep its contact with the ground while maintaining its liberation from it. The experience of water as a phenomenon of the ground is strongly promoted by the stair. The depth beneath is strongly felt by the deliberate suspension of the stair over the stream by expressing a potential humility contrary to the proud uplift of the house over the landscape. In this sense, Fallingwater’s stair strongly expresses the directional theme by reflecting the idea that stairs are “guided by finding a goal—either humbling or uplifting” (ibid.).

As figure 6.10 illustrates, Villa Mairea’s main wooden stair descending into the living room resembles Fallingwater’s. Mairea’s stair appears to be suspended from the ceiling as Fallingwater’s stair is suspended to the level of the stream. Both staircases have a wider first tread as a mediator between the stair and mass beneath. Wright’s stair takes us down to the water level with an expression of humility and descent, whereas Aalto’s stair expresses potential exaltation and uplift by taking us to the first floor. The former gives the feeling of “leaving something” while the latter “conveys a feeling of reaching something ” (ibid, p. 89). Wright’s stair is suspended from the detached hovering floor of the living room desiring to touch the natural ground; in the contrast, Aalto’s stair is



suspended above the attached floor of the living area soaring to liberate itself from the gravity of the ground. Wright's stair yearns to engage with the ground while Aalto's seek to break free and rise. Fallingwater's and Mairea's stairs demonstrate "a conflict between potential humility and potential exaltation" (ibid.).



Figure 6.10. Villa Mairea's wooden stair directs us from a more public zone to the safe haven of a private zone with a potential expression of security and uplift. (Pallasmaa, 1998, p. 107)

Even though Villa Mairea's staircase is functionally mandatory, it, like Fallingwater's, also bears a visual and symbolic significance. The random wooden poles used as side guards are reflections of the outside forest. Whereas the linkage of the inside with the outside is physical in Fallingwater, it is metaphorical in Mairea. The gentle ascent of the stair to the first floor delineated by the wooden poles creates a sense of

depth that accentuates the private and secluded nature of the floor above. In this sense, the stair links the private (up) and the public (down) zones of the house. Mairea's main staircase directs us to a more tranquil and secure private haven above the ground level, whereas Fallingwater's stair directs us from the secure interior to the exposed exterior of the earth and stream.

So far, I have presented the floor of the two houses in terms of the three existential qualities of motion, weight and substance to elucidate the inside and outside relationship. Next I present how the roofs of the two houses can be spoken of in terms of the inside-outside relationship.

Basically the floors and roofs of both houses have a related expression. In both cases, the roof becomes a floor and the floor becomes a roof. This shift occurs, as the floor, which is a balcony and terrace for upper floors, becomes a roof to lower floors by providing shelter from above. In this sense, the floors and roofs of the two houses interchange their archetypal function and architectural expression. Besides they both share a commonality by delimiting an inside space in vertical axis, which the wall does in horizontal axis.

## CHAPTER 7

### INTERPRETING THE ROOF OF FALLINGWATER AND VILLA MAIREA USING THIIIS-EVENSEN'S ARCHITECTURAL ARCHETYPES

Whereas the floor is related to what is above and beneath, the roof is related to what is under and over—the floor to the earth and the roof to the sky. In the inside-outside relationship, “the roof protects an interior space against an exterior space, a space that is both over and around it” (Thiis-Evensen, 1987, p. 301). Thiis-Evensen identifies five roof themes: *dome*, *barrel vault*, *gable roof*, *shed roof*, and *flat roof* (ibid., p.303). Among these, the flat roof is the only common feature of both Wright's Fallingwater and Aalto's Villa Mairea.

Thiis-Evensen writes that, unlike the other themes, a flat roof “must be inhabited in order to assert itself at all” (ibid., p. 371) because “the flat roof is basically unaffected by the environment and in principle is without expression” (ibid.). Wright and Aalto have devised particular design solutions that make Fallingwater's and Villa Mairea's flat roofs assertive with unique architectural expressions. In this section, therefore, I examine these architectural expressions and consider how the roofs affect the inside and outside relationship of the two houses in terms of motion, weight, and substance.

#### **Motion, Weight, and the Roof of the Two Houses**

Both Wright and Aalto seem to have chosen the flat roof intentionally so that it could simultaneously serve as a terrace and balcony. Wright and Aalto have used various techniques such as surface articulations, level differences, articulation of transition from ceiling to wall, and different materials to generate motion in rather rigid and static flat

roofs. Because of their flat roofs, both houses suggest a balance between downward and upward motions, and a leading motion in an outward direction that tends to open up the interior spaces to their surroundings (ibid., p. 301). Thiis-Evensen writes that a flat roof is like a rigid lid in the relationship of above and below, and the motion it generates spreads horizontally, which directs an inside space equally in all directions (ibid., p. 371).

As figure 7.1 suggests, Fallingwater is powerfully related to the outside landscape by a leading horizontal motion generated by its flat roof. Although a flat roof is basically unaffected by the environment and is in principle, without expression, Wright employed various architectural devices whereby his flat roof asserts itself with meaningful architectural expression. Wright argues that he saw “ a building primarily not as a cave but as broad shelter in the open. Shelter should be the essential look of any dwelling” (Wright, 1954, p. 16) Therefore he suggests “ the use of low spreading roof, flat or hipped or low gabled with generally projecting eaves over the whole” (ibid.). In this sense, the recurring use of flat roofs in Fallingwater at various levels seems to meet this intention. The deep overhangs and the projecting balconies express the concept of shelter. The flat surfaces of the concrete roofs generate an outward horizontal motion that opens up the building and engages it with the outside landscape.

Similarly, Aalto’s use of the flat roof in Villa Mairea accentuates the horizontal motion of the house. As figure 7.2 suggests, the horizontal motion of the flat roof, which tends to open the interior space, establishes a strong dialogue between the inside and outside. The use of a pine-slat finish for the living room ceiling creates a pattern that leads us in two directions toward the outside through the large glass openings. The recessed lines in the ceiling accentuate this horizontal motion as well. One the other hand,

the motion impulse created by Villa Mairea's flat roof is not as powerful as Fallingwater's because deep overhangs, eaves, and balconies are missing.

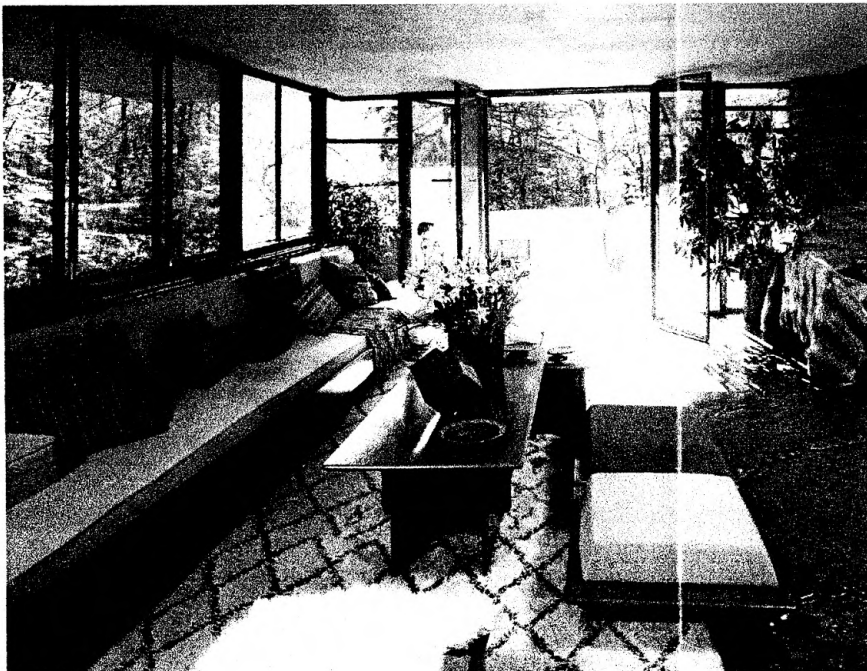
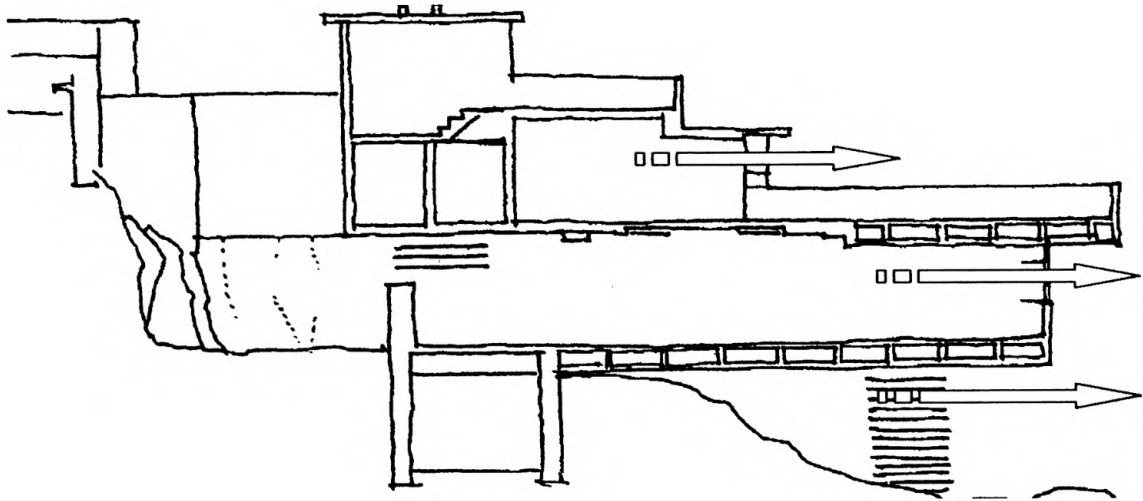


Figure 7.1. Fallingwater's flat concrete roofs generate an outward horizontal motion that opens up the building and engages it with its landscape. (Kaufmann, 1986, p. 73).



Figure 7.2. Villa Mairea's flat ceiling generates an outward horizontal motion that opens up the building and engages it with its landscape. (Pallasmaa, 1998, p. 107)

Besides the outward motion generated by Fallingwater's and Villa Mairea's roofs that relate both houses to the outside landscape, both architects generate a vertical motion through the roof of the two houses, which relate them to the sky above. The vertical sense of motion created in Fallingwater's roof is generated by the manipulation of the surface of the ceiling and the transition between the wall and the roof. Similarly, in Villa Mairea, Aalto has employed different materials to create a vertical motion by manipulating the surface of the ceiling and the transition between the wall and roof.

Wright has created a vertical motion through Fallingwater's flat roof slab by articulating the ceiling. As figure 7.3 illustrates, this method is nowhere more evident than in the ceiling of the living room. Wright created a stepping ceiling that tapers upward in three levels. The stepping-up effect lifts the ceiling and generates an upward motion. The hidden light source used on the last recessed part of the roof slab, in

particular, detaches the flat plane at the center from the remaining part, further accentuating its rising effect. On the east side of the living room, there is part of the roof with trellis whereby transparent glass is used in between the beams. Whereas the recess of the beams generates an upward or rising motion by itself, the use of glass as a roofing material dematerializes the presence of the roof altogether. Vertical motion becomes indefinite and the sky beyond the glass becomes the natural roof. At this point, the house meets with the sky.



Figure 7.3. Fallingwater's living room ceiling tapers upward in three levels. The stepping-up effect generates an upward motion that lifts the ceiling to the sky above. (Kaufmann, 1986, p. 78)

Discussing his concept of "plasticity" (which means physical continuity), Wright said that ceiling and wall can be made one with floors, and reinforce each other by making them continue one into another. This makes it possible for "the upright (the

vertical) and horizontal to work together as one” (Wright, 1954, p. 57). As figure 7.4 demonstrates, in Fallingwater, the detachment of the roof from the wall has given the roof a rising or hovering impression. This is due to the use of glass in larger proportion where the house faces toward the outside. The use of this glass surface dissolves the presence of the wall and brings it to the verge of non-existence. Consequently, the heavy-appearing concrete slab roof, despite the downward motion it generates because of its low height and sense of weight, appears not to be supported by the wall. As a result, the roof liberates itself and hovers in the air.



Figure 7.4. The use of glass on much of Fallingwater’s wall makes the roof look detached and independent. As a result the roof evokes a rising or hovering impression. (Kaufmann, 1986, p. 78)



Similarly, Villa Mairea's ceiling subtly suggests a desire for independence by freeing itself from its supports and floating in the air. As figure 7.5 illustrates, this sense of uplift and detachment comes from the relationship between the pine-slats-finished ceiling and the round columns arranged in singles, pairs and triples. The character of the round columns give an impression that the slab is not attached to the column shafts. When supported on a round column, "the slab seems almost movable, as if it could be slid up and down" (ibid., p. 217). This suggests a liberation of the slabs from any support beneath and generates a sense of rising or uplifting motion.



Figure 7.5. Villa Mairea's first floor ceiling seems to rise in an upward direction and defy gravity because of the round columns that give an impression that the slab is not attached to the column shafts anymore. (Pallasmaa, 1998, p. 107)

The choice of pine slats also contributes to the rising effect of the ceiling. These pine slats give the ceiling a sense of lightness, which would have seemed much heavier if the concrete slab was exposed. Aalto's use of a white-painted concrete ceiling at the

entrance and pine slats in the living room creates different depths and textures of the ceiling surfaces. This difference in substances of the ceilings communicates different meanings. The use of pine slats in the living room expresses warmth and intimacy, while the white concrete finish in the entrance wall feels cold and distant.

Villa Mairea's library wall, detaching itself from the roof, further accentuates the independence of the ceiling. As figure 7.6 illustrates, initially the library wall was physically disconnected from the ceiling, but later undulating glass and plywood units were placed between the cabinets and the ceiling. The new addition metaphorically expresses the forest light in the house. The thinness of the units and the light that passes through them seem to suggest the independence of the ceiling from any structural support from beneath. The long solid wall that pushes the opening field to the top gives the ceiling a strong rising effect. This ceiling looks independent of any support and appears heavy because of its large span, but, its sense of freedom gives it a hovering effect—a suspension between the downward motion due to heaviness and upward motion due to independence.

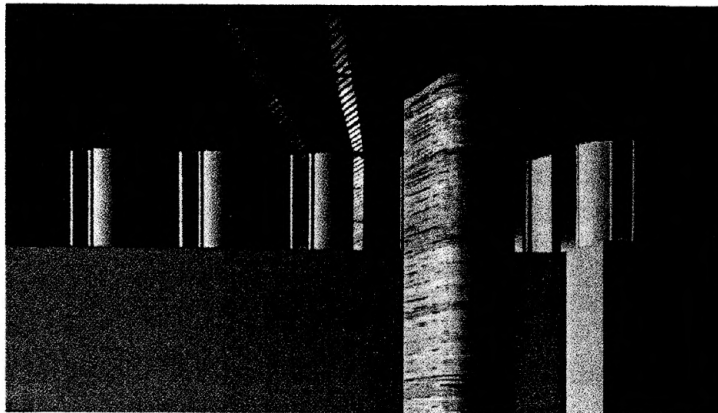


Figure 7.6. The detachment of Villa Mairea's ceiling from the library's solid wall gives a floating effect to the ceiling. Further, the high solid wall that pushes the opening field to the top accentuates the uplift and rising effect of the ceiling. (Pallasmaa, 1998, p. 113)

A unique transition between the roof and the wall occurs in Villa Mairea's dining wall. The flat concrete roof slab of the dining hall slants down at angle towards the opening that overlooks the courtyard. This slanting character of the roof, according to Thiis-Evensen, draws the roof down to the space beneath, and the entire room becomes more compact and intimate (*ibid.*, p. 377). The intention behind the ceiling slanting at that particular corner seems to echo the angle of the rustic stair found beyond the north fireplace of the dining hall.



Figure 7.7. The downward motion generated by the heavy-appearing flagstone floor, and the upward motion created by the uplifting and independent-appearing ceiling tends to open up Fallingwater's interior to the outside. (McCarter, 1994, p. 43)

In Fallingwater, the hovering of the house above the ground as experienced from the outside is also echoed in the inside by the uplift of the roof slab. It is interesting to see the opposite vertical motion impulse created by the roof slab and the floor. The roof slab suspends between two contrasting forces—downward motion due to its heaviness and the

rising effect due to its independence from the wall. As figure 7.7 suggests, the waxed flagstone finish gives the floor a sense of weight and downward motion. In contrast, the independence of the roof slab from the glass wall creates lightness and an upward motion, which eventually tends to open up the middle section of the house to the outside.

### **Substance and the Two Roofs**

All the roofs in Fallingwater, except the third floor, serve as roof terraces for the next floor above. As a result, the roof slab that seemed to rise up to the sky also appears to sink down to the earth when encountered at different levels. Fallingwater's flagstone finishing fuses the roof terraces with the natural bedrock found in Bear Run. The stone's substance, color and texture creates a strong harmony with the natural landscape and looks like an extension of the natural floor. As a result, one experiences a strong attachment to the ground beneath, while at the same time one is also lifted up into the air. Fallingwater's roof terraces simultaneously accomplish a dual purpose of roof and floor—by rising and sinking.

Moreover, designing the roofs to become a shelter for lower floors and a terrace for upper floors is a crucial design solution provided by both Wright and Aalto to enable one to thoroughly experience the houses—inside, outside, above and below. Fallingwater's projecting balconies spreading in every direction are simultaneously terraces and roofs. Below them one finds shelter, safety, and an enclosed refuge that enables one to see the outside without being seen. Above them one finds oneself on an exposed and uplifted position where it is possible to see and control the surroundings without any obstruction. Here, the sky from above is the common roof for all the terraces.

In this sense, the house acts simultaneously as a cave—a place to take refuge—and a hilltop—a site for unimpeded outlook. This idea fulfils Thiiis-Evensen’s argument that “a dome or even a shed roof is self-sufficient. A flat roof, on the contrary, must be inhabited in order to assert itself” (ibid., p. 371).

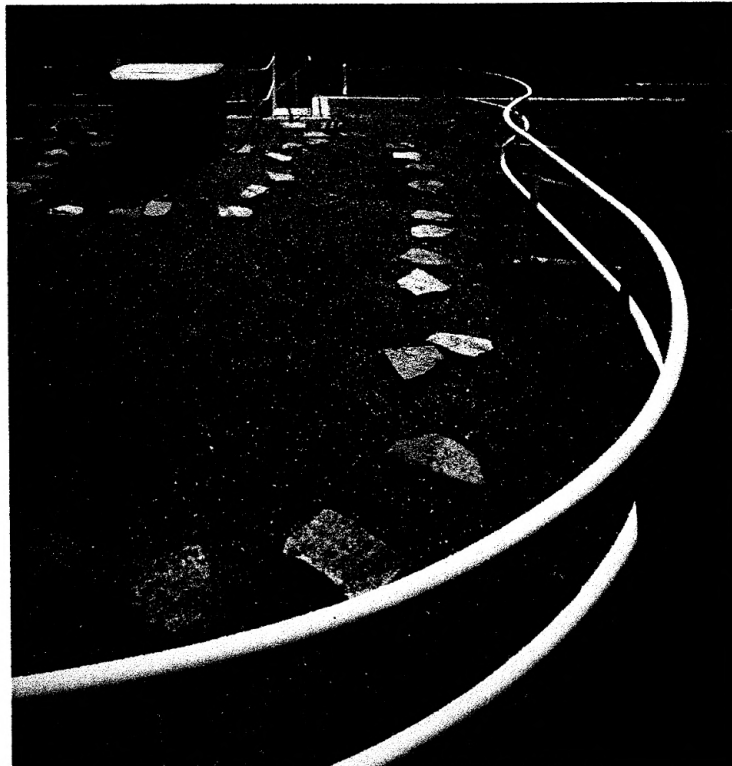


Figure 7.8. The stepping-stones set over gravel bedding on Villa Mariea’s main roof evoke an image of a Japanese Garden. (Pallasmaa, 1998, p. 60)

Similarly, Aalto has also succeeded in making Villa Mairea’s roofs assertive. In Villa Mairea, a rich variety of roofscapes is created. As figure 7.8 demonstrates, the stepping-stones set over gravel bedding on the main roof evoke an image of a Japanese garden. These stones seem deeply imbedded in the very crust of the earth and express “the ground’s elements of security. Set closely together they stiffen the ground, and in rows they pilot us safely through the changing landscape” (ibid., p. 53). Thiiis-Evensen

further writes that “ haphazard groups of dark stones crop up from the meticulously raked sand surface. The stones appear as islands of safety in a changing landscape in which the sand representing life’s mutability, encloses the mountain’s primeval forces” (ibid.). For Villa Mairea, the difference between the roof and the ground is eliminated, which as a result elicits a feeling that one is stepping on an elevated natural ground rather than on a building’s roof.

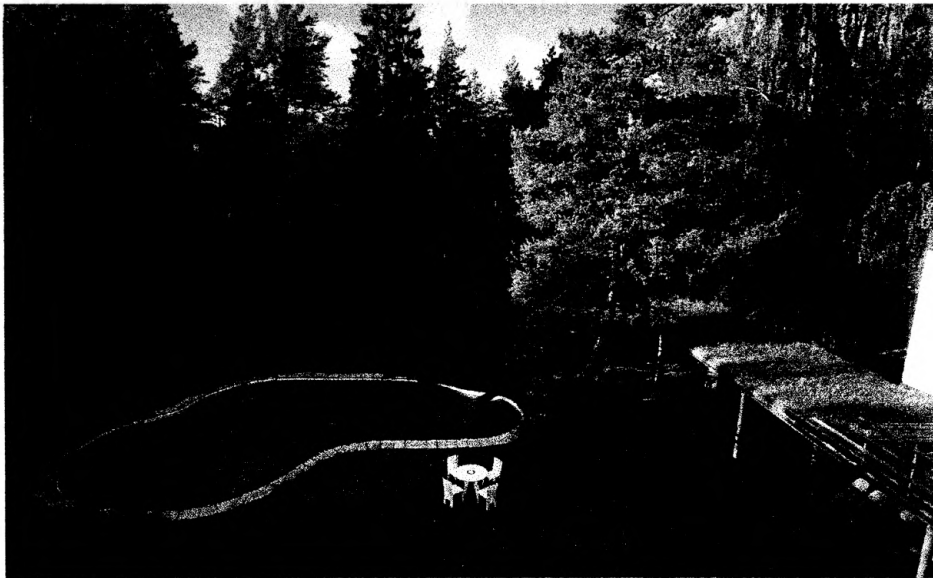


Figure 7.9. Villa Mairea’s  
roofscape exhibits a mixed  
miniature of the Finnish  
Landscape. (Pallasmaa, 1998, p. 85, 95)

As figure 7.9 illustrates, the expression of Villa Mairea's roof in terms of substance relates to the elemental matter of the earth. The turf roof of the sauna terrace creates a strong association with the ground. The unusual gentle earth mound and vegetation Aalto employed on the covered terrace roof creates a metaphoric miniature human-made landscape. The stepping-stones arranged on the strewn gravel of the main house roof reflects a Japanese dry garden, whereas the vegetation on the turf roof of the covered terrace, along with the pool, reflects the wild Finnish landscape. Once again, as the house is experienced from the outside, Aalto seems to be persistent in relating the roof with the earth rather than with the sky. The slate roof over the studio illustrates yet another strong association of the roof with the ground.

In short, from the outside, both Fallingwater's and Villa Mairea's roofs strongly associate themselves with the earth rather than with the sky. This connection originates from the expression of downward motion generated by heavy-appearing materials that relate to with the phenomena of the ground's texture and substance. These materials express attachment to the ground rather than levity and the sky. From the inside, in contrast, the ceilings of the two houses soar towards the sky by generating an upward motion that elicits a sense of uplift and levity. On the one hand, the ceilings bring openness, levity and expansiveness—typical qualities of the sky, to the enclosed and confined inside space. On the other hand, the roof terraces from their exposed and elevated position long to touch the earth through rusticity, heaviness, and material associations typical of the ground. Ultimately, the inside of the two houses is raised to the sky, while their outside is brought down to the earth.

In this chapter, I have examined how the floor and the roof of the two houses create an inside in the midst of outside through the three existential qualities of motion, weight, and substance. In a similar way, in the next chapter, I next examine Fallingwater's and Villa Mairea's *wall*.



## CHAPTER 8

### INTERPRETING THE BREADTH AND HEIGHT THEMES OF FALLINGWATER'S AND VILLA MAIREA'S WALL USING THIIS-EVENSEN'S ARCHITECTURAL ARCHETYPES

In the preceding two chapters, I presented how the floor and the roof of Fallingwater and Villa Mairea create an inside in the midst of outside through motion, weight and substance. I also elucidated how the floor and roof of the two houses convey an ambivalent meaning in their expression of the inside-outside relationship. The floors express a strong sense of attachment to the ground, while they seek to liberate themselves from the force of gravity. The roofs relate to the sky but also associate themselves with the earth through an expression of heaviness and materials that reflect the phenomenon of the ground. Both the floor and the roof establish a vertical relationship between inside and outside—the floor through above and beneath, and the roof through over and below. In contrast the wall, unlike the floor and roof, relates the inside with the outside *horizontally* through *within* and *around*. At the same time, as an in-between, the wall mediates between the earth and sky by linking the floor and the roof in a vertical axis through various fields of energy.

Thiis-Evensen writes that the main purpose of the wall in architecture, besides providing a structural support to the roof, is to define a territory by dividing and delimiting the two major spaces—inside and outside (Thiis-Evensen, 1987, p. 116). The wall determines the relative strength of the inside-outside relationship and the degree of openness or closure. The comparative strength of inside and outside space determined by the wall is understood by “the degree of penetration” (ibid., p. 117).

Thiis-Evensen argues that depth is the most important theme because it directly contributes or affects the sense of insiderness and outsiderness. The main form, the building system, the openings and the articulation are the four depth themes that affect the inside and outside relationship (ibid., p. 140).

Thiis-Evensen says that the expression of penetration is dependent on the relationship between three themes, which he identifies as *breadth*, *height*, and *depth* (ibid.). As explained in Chapter 3, the breadth theme is the horizontal sense of the wall expressed through a dynamic relationship between a central field and two peripheral fields, and fundamentally involves four different motifs which include the breadth, the split, the right and the left motif (ibid., p. 119-123). The height theme is concerned with the vertical sense of the building—the walls relationship to up and down (ibid., p. 129). Based on three fields of energy, Thiis-Evensen identifies four motifs, which he refers as the rising, the sinking, the split, and the opening motif (ibid., p. 133).

In this chapter, I interpret Fallingwater's and Villa Mairea's walls in terms of the breadth and height themes. Those major elevations that are often experienced by a visitor are selected for examination in terms of the inside and outside relationship. Fallingwater's south and east elevations are selected because they are the most visible parts of the building that one encounters while approaching the house across the bridge toward the main entrance. Even though there is an entry to the main house at the garage level, the northern side of the house is largely hidden behind by the steep elevation of the terrain. In relation to the Villa Mairea, its southeast, southwest and northwest elevations are selected for interpretation because they show the main entrance and the main courtyard, and because they are parts of the building where life in the house concentrates

and that one frequently experiences. Villa Mairea's northeast elevation is not considered because it is the least experienced part of the building unless one walks around into the forest.

### **The Breadth Theme and the Two Houses**

Fallingwater's south elevation tends to express more than one motif of the breadth theme. On the one hand, the continuous glass opening that runs between the two vertical stone masonry walls split the building apart into two major sections. As figure 8.1 illustrates, the way the opening field is held back in relation to the right side accentuates the splitting nature of the left side. The right side of the same elevation, however, expresses a different sense of motion, which is dominated by a strong sense of expansion in the horizontal direction. As one approaches the main entrance from the southeast across the bridge, the expansive and opening nature of the house becomes increasingly evident. The splitting motif of the south elevation is not experienced from the southeast direction that leads to the main entrance because the projecting balconies hide that part of the elevation from sight.

On the other hand, Fallingwater's projecting balconies spread out in every direction to meet the outside in a cascading fashion, and the series of its wide openings suggest a dominant breadth theme. As figure 8.2 illustrates, the middle section dominated by dynamic balconies and wide openings thrust forward as the solid walls at the opposite corners hold back. Thiis-Evensen writes that the breadth motif is generous and receptive because it allows the entire building to expand outwards (*ibid.*, p. 125). From this side,

openness is emphasized and the house establishes a dynamic link between the inside and the outside by dramatically spreading out into the landscape.

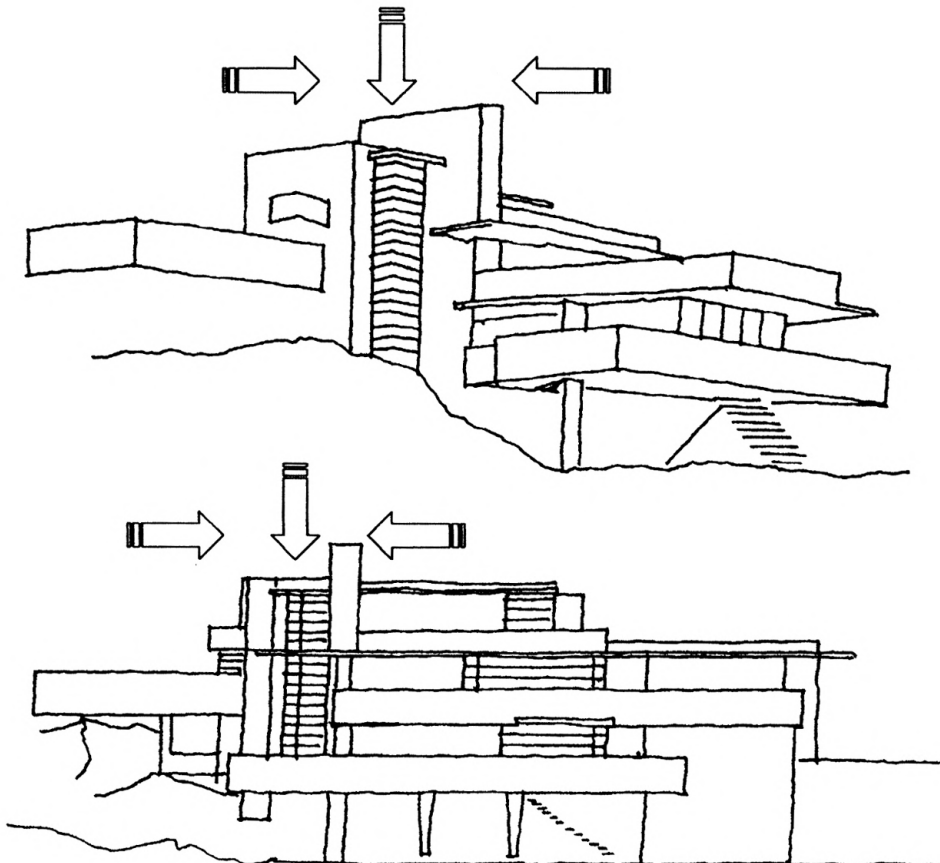
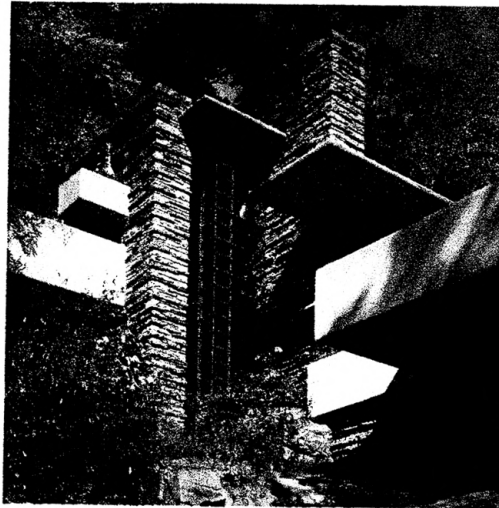


Figure 8.1. The continuous glass opening that runs between the two vertical stone masonry walls tends to split the building apart into two major sections.

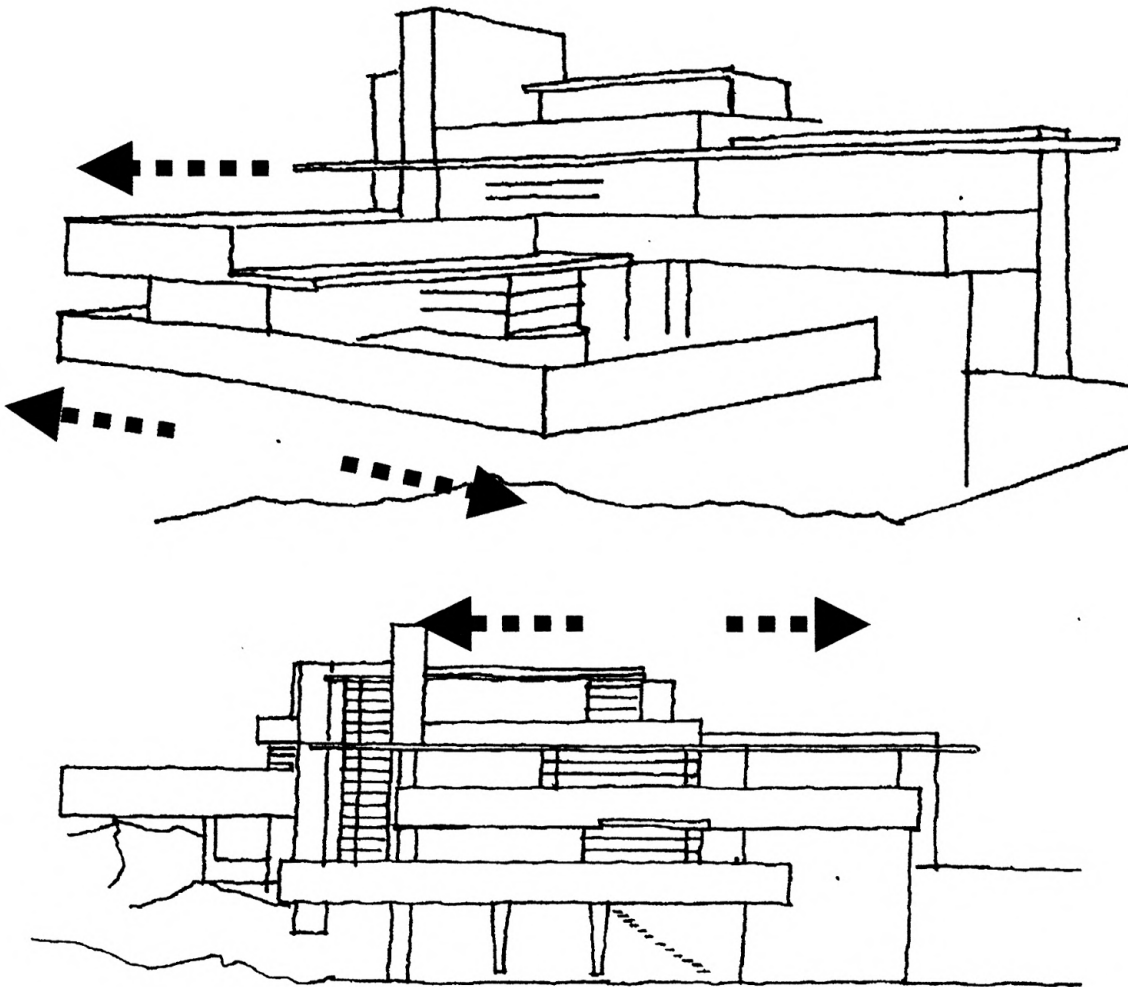
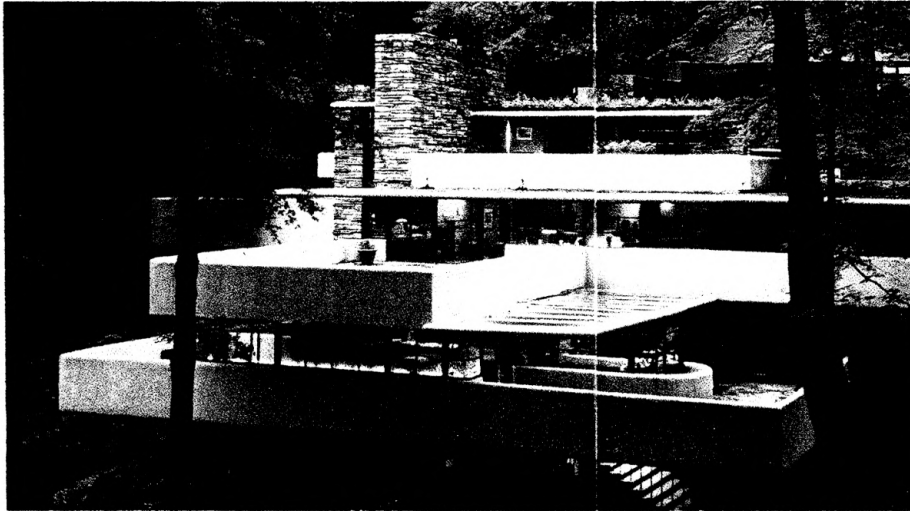


Figure 8.2. The major part of the south elevation expresses the breadth motif by the series of openings and the balconies that expand the building towards us. (Kaufmann, 1986, p.74-75)

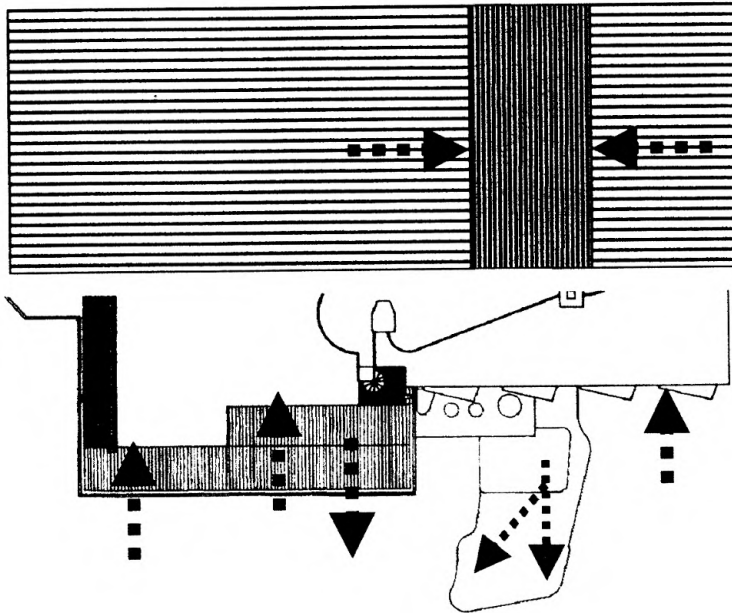
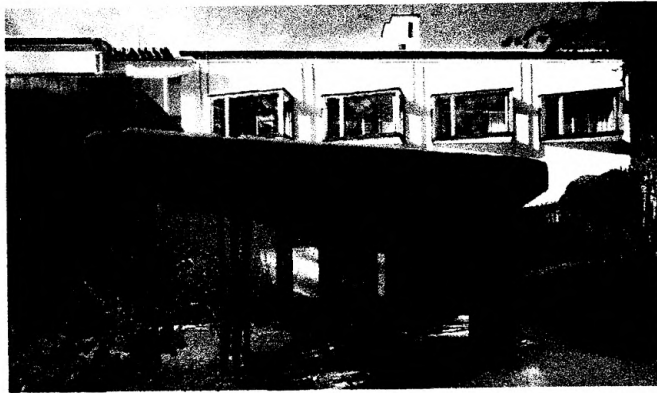
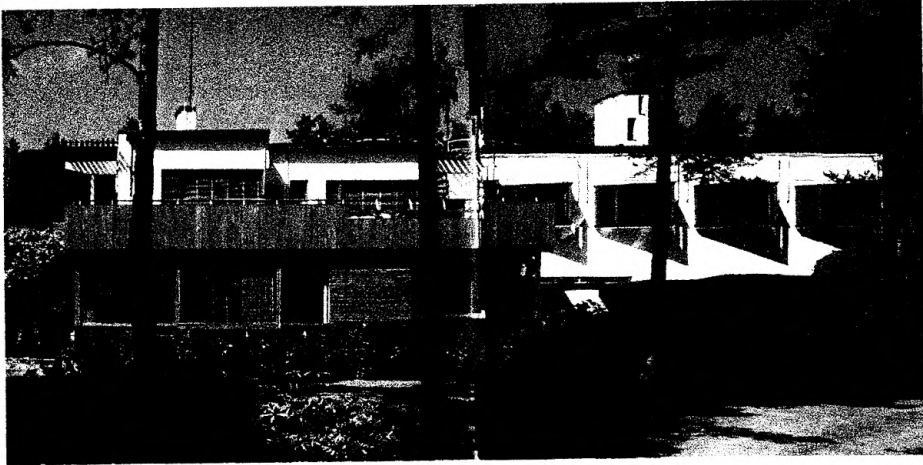


Figure 8.3. Villa Mairea's rustic canopy projecting out to the street expresses the right motif of the breadth theme by gravitating our attention to the right side of the building. (Pallasmaa, 1998, 7,8,69,148)

The dominance of the breadth motif is further pronounced by the horizontally running concrete balconies, which intensify the expanding nature of the middle section in the opposite direction. The dynamic expansion of the balconies in the horizontal direction seems to be defined or resisted by the vertical masonry walls found at opposite ends. Further, the use of contrasting materials such as rustic stonewalls for the verticals and white painted concrete walls for the horizontals have made the expression of the breadth motif more palpable.

In contrast, Villa Mairea's southeast elevation, where the main entrance is located, conveys a different expression of motion. As figure 8.4 suggests, when we approach the house from this direction, our attention is drawn to the right side of the house. According to Thiis-Evensen's breadth theme, this expression is known as the *right motif*. Even though the music room, the library, and the master bedroom terrace found on the left side of the entrance have larger area of openings, the entrance canopy, despite its relative short height and solid wall background, creates a stronger corner. The projecting canopy that springs out to the street to meet us with a hospitable gesture is a powerful architectural element that pulls our attention towards it. In contrast, as figure 8.4 illustrates, Fallingwater's main entrance is not experienced as the right motif, although it is theoretically located at the right side of the east elevation because the surrounding terrain and forest conceals it from view and we discover it only gradually.

Villa Mairea's dark and shaded entryway created by the generous canopy from above and the spruce pole screening that delineates the right side for visual buffer creates a pure impulse to move forward. The main entrance is located on the right side of the elevation. By locating the entrance at the right side corner of the main elevation, Aalto

exploits our natural propensity toward the right side as a stronger corner than the left side. Our attention is drawn in this direction simply because the entrance is located to the right side of the southeast elevation. Thiis-Evensen writes that “ out of pure impulse, we gravitate toward the strongest corner. Why? Because the strongest corner most clearly characterizes the interior as a delimited and secure place and thereby makes manifest the insertion of our motion inwards. That section which corresponds to our right side is immediately understood as being the strongest” (ibid, p. 125).

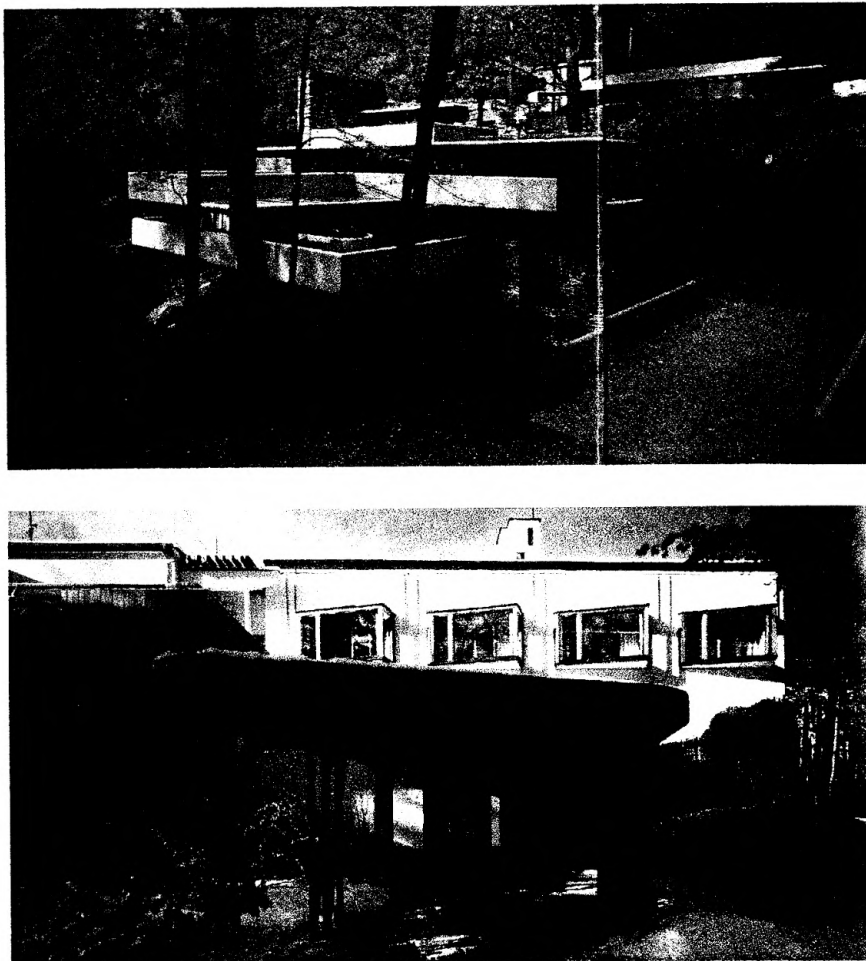


Figure 8.4. Fallingwater’s main entrance is not experienced as a right motif, although the entry is located at the right side of the east elevation. In contrast to Villa Mairea’s conspicuous entrance, Fallingwater’s entrance is hidden and is discovered only gradually. (Pallasmaa, 1998, p. 69)



As Fallingwater and Villa Mairea are private houses, an asymmetrical placement of their main entrances, augments their private character in a way that is more powerful than a symmetrical placement (ibid., p, 125). Unlike Villa Mairea's main entrance elevation, it is hardly possible to examine Fallingwater's main entrance according to Thiis-Evensen's breadth theme. The hidden nature of the main entrance emphasizes more of the depth theme than the breadth theme. The right motif of Villa Mairea's southeast elevation helps the visitor to easily find his way to the main entrance while Fallingwater's east elevation presents the visitor with surprise and uncertainty by hiding its entrance in the deep, dark corner. Villa Mairea's right side motif can be detected visually. Fallingwater's main entrance, in contrast, is unusually mysterious and needs to be discovered gradually, which in the process involves other sensory experiences besides the visual.

### **The Height Theme and the Two Houses**

I have examined the breadth theme of the main elevations of the two houses and found out that the major horizontal expression of motion of the two houses includes the breadth, the split and the right motifs. In regard to the height theme, Fallingwater's major expression is a split motif whereas Villa Mairea's wall suggests more than one expression—a rising motif on the main elevation and a sinking motif on the courtyard elevations.

Fallingwater's predominant expression of the split motif is generated by the consistent rhythm of the horizontal balconies and the glass openings in between. The opening section appears narrow in relation to the dominant upper and lower horizontal

fields which both tend to press the middle part together. As figure 8.5 demonstrates, the upper balconies seem to sink, while the lower field seems to rise above the depth beneath. As a result of sinking from above and rising from below, the house seems suspended in the air and hovering above the landscape. The uplift on the air expresses a defiance of gravity and a strong will to survive above the depths beneath. The split motif created by the vertical motion of the wall occurs at successive layers, starting from the first floor to the third floor. The living room that springs forward to meet us clearly expresses the split motif. The bedroom of second and third floor, which are held back successively to the north, repeat the same expression of motion. Fallingwater's wall appears to project and recess almost in every direction and consistently demonstrates the recurrence of the narrow strip windows pressed between the flying horizontal concrete walls.

The pressing of the narrow horizontal strip windows between the dynamic horizontal planes from above and below expresses the interior as being on the verge of enclosure: "It is as if the energy from within is threatened by two opposing forces which give the entire relationship between inside and outside an unresolved tension" (ibid., p. 137). The projection of the house into the landscape in every direction asserts the desire to let the inside flow to the outside and the outside into the inside. The dominance of the upper and lower fields of the walls over the opening located in between seem to defy interpenetration of the inside and outside. On the one hand, the hovering of the house over the landscape and its daring projection in every direction offers an unimpeded view to the outside—fulfilling the desire to see. On the other hand, the narrowness and depth of the openings seems to resist any visual access from the outside to the inside, thus fulfilling the desire not to be seen. In short, Wright's intention of creating a split motif in

the vertical motion of Fallingwater seems to meet human beings' innate desire of to see without being seen.

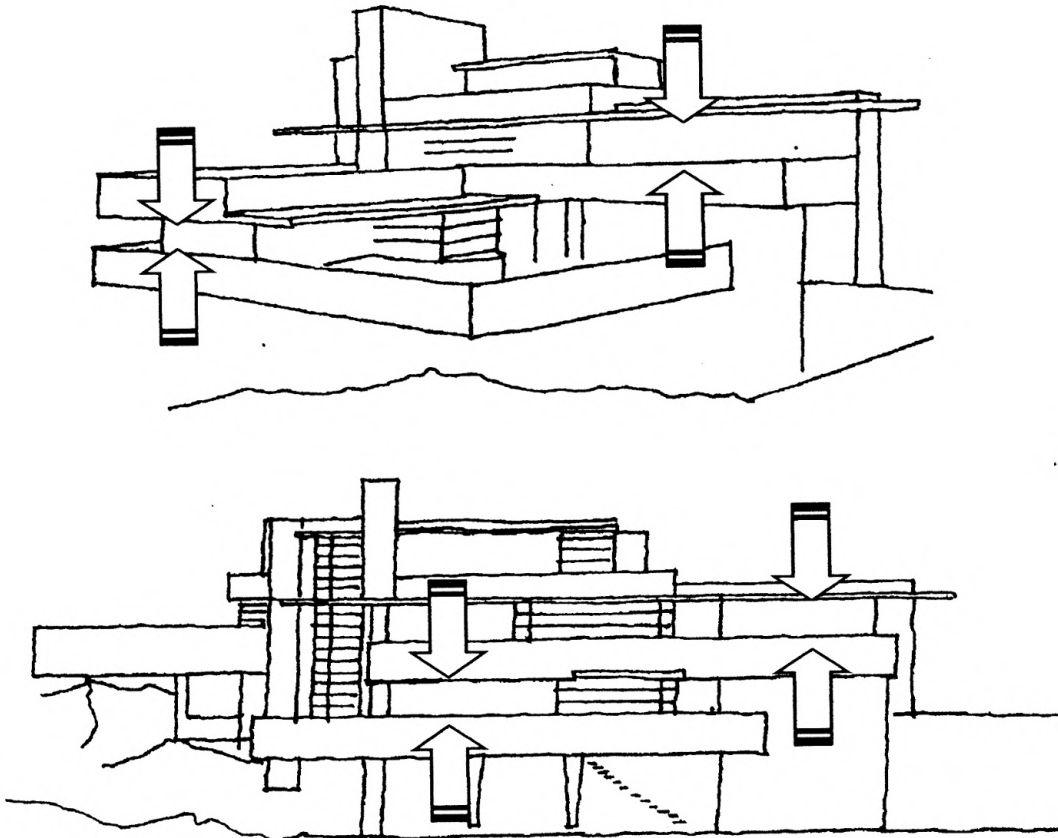


Figure 8.5. Fallingwater's upper balconies seem to sink, while the lower balconies seem to rise above the depth beneath. As a result, a split motif is generated as the house is suspended in the air and hovers above the landscape. (Kaufmann, 1986, 74-75, 179)

In Villa Mairea's main elevation, the desire to see without being seen is fulfilled by the rising motif. The house closes itself at the ground level through opacity, while opening itself outward from the height of the bedroom windows. The lower floor closed from the outside creates a safe haven inside—a place not to be seen. The upper floor's exposure provides an unimpeded view to the outside. This design approach emphasizes the private nature of the building, and Aalto's intention to locate the main entrance at this solid and closed wall seems to evoke a strong sense of refuge and secured interior. In short, Fallingwater's and Villa Mairea's vertical motion of the wall accentuates the sense of refuge and outlook.

The bedrooms' windows that constitute the middle field by creating a continuous line of openings generate the rising motif of Villa Mairea's main elevation. As figure 8.6 illustrate, the lower field of the elevation, which is dominantly a solid wall, pushes the middle field upward. The sense of weight of the southeast elevation wall decreases as we go upward and increases as we go downward. These two expressions of contrasting motions establish the rising motif that simultaneously seems to be heavy and well anchored to the ground, while up right and free (ibid., p. 133). The right side of the main elevation emphasizes a rising motif, but the left side of the same elevation expresses a depth theme than a height theme.

Villa Mairea's northwest and the southwest elevations, which are the courtyard elevations, have the same sinking motif expression. The white painted, solid wall runs horizontally along the second floor, while a continuous glass window surrounds the first floor. As figure 8.7 illustrates, the middle field that opens itself to the courtyard is drawn below the wall's center line, and the solid wall above appears to be the largest, while the

lower section wall appears pressed against the ground, which suggests a sinking motif. Thiis-Evensen writes that a horizontal window located low in the wall increases an expression of a sinking effect (ibid., p. 265). The common expression of a sinking motif by both courtyard elevations unifies the building as a single entity and enables it to evoke an integrated experience.

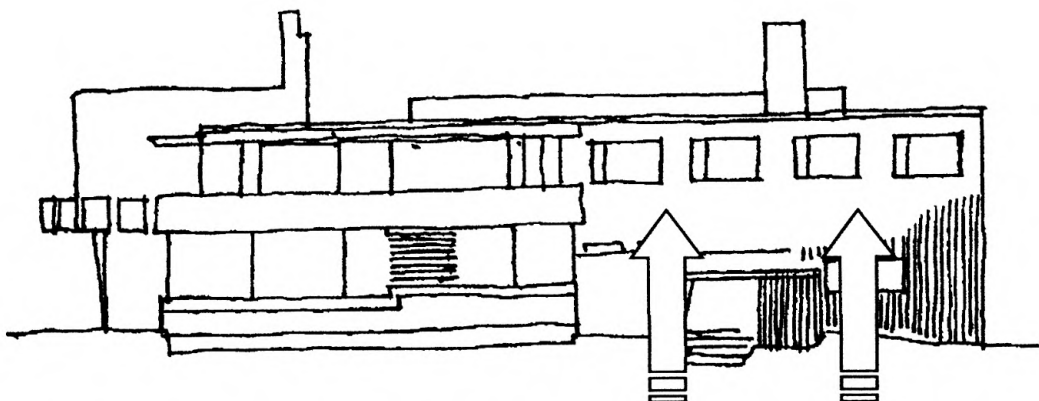
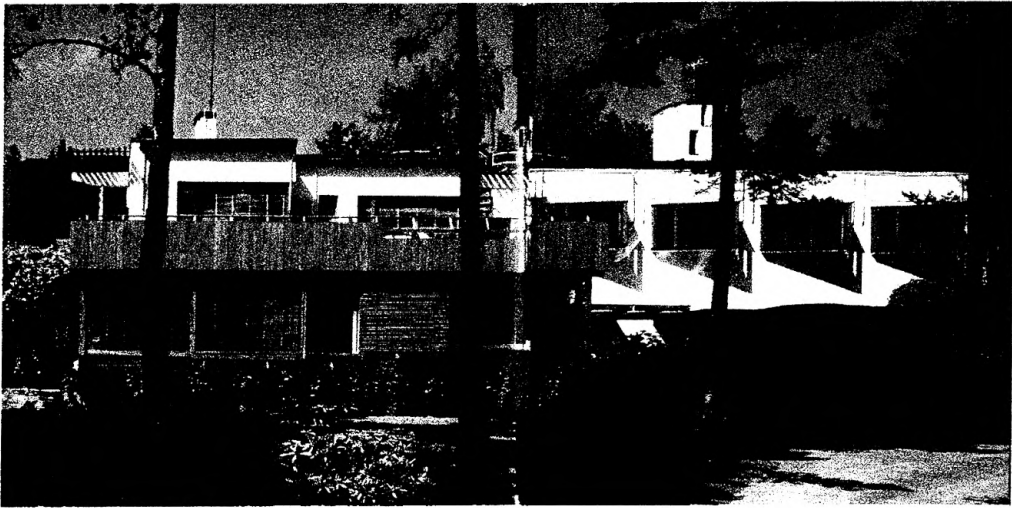


Figure 8.6. On the right side of Villa Mairea's main elevation, the lower field pushes the middle field upward, which disconnects the first floor from the outside, while engaging the upper floor with the outside. Refuge is emphasized in the lower floor and prospect in the second floor. (Pallasmaa, 1998, p. 7-8, 150)

Aalto's intention of closing the upper field with a solid wall and opening the middle section with a glass surface seems to be a deliberate effort to create a continuous dialogue between the inside and outside. Contrary to the solid lower field of the main entrance façade that resists penetration, the open lower field of the courtyard elevations invites the outside into the inside to make the courtyard part of the interior. The engagement of the inside with the outside by the sinking motif of both elevations makes the courtyard an extension of the interior. The opposing expressions of vertical motions on Villa Mairea's main and courtyard elevation walls clearly define the respective outside spaces as private and non-private domains. In both cases, although the expression of the vertical motion is opposite, a clear sense of a secured private inside is created in the midst of the open outside. On the other hand, the expression of the northeast elevation is an open motif though it is least experienced from the outside. The even pattern of openings that spread in all directions of the wall opens the facade to the outside forest.

In this chapter I have presented the interpretation of the two houses in terms of the breadth and height theme, which mainly deal with the horizontal and vertical motion of the walls' expression. As we have seen so far, the motion created by the horizontal and vertical walls directly and indirectly influences the inside-outside relationship to a certain extent. The depth theme however primarily have the strongest effect on the inside-outside relationship, and in the following chapter, I examine the depth theme of the two houses in detail.

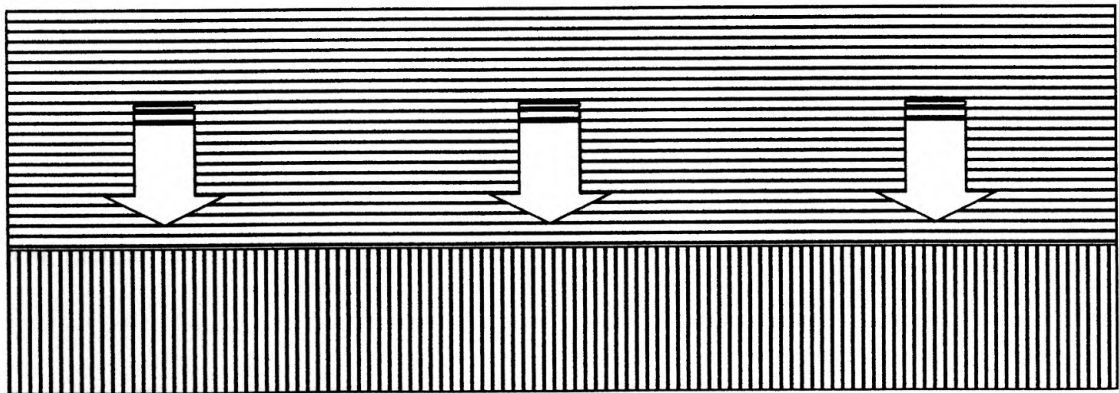
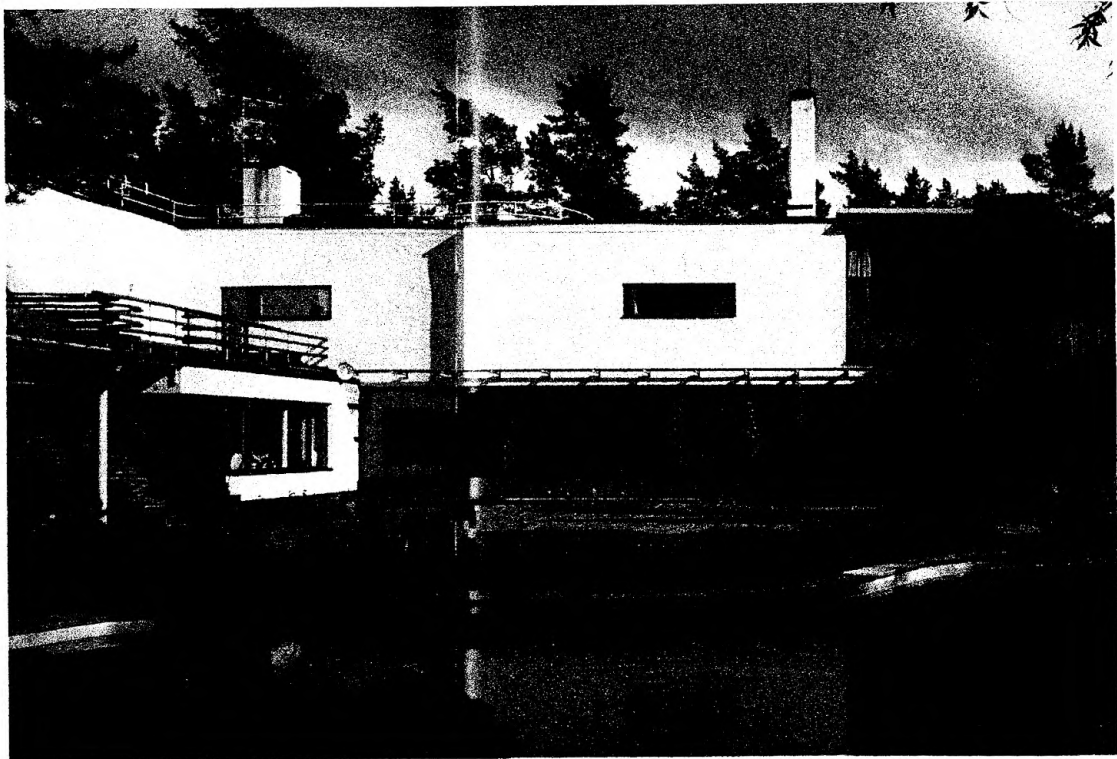


Figure 8.7. Villa Mairea's courtyard elevations express a sinking motif. The horizontal window located low in the walls increases the expression of a sinking effect. Unlike the rising motif and solid lower field of the main entrance elevations that resists penetration, the open lower fields of the courtyard elevations make the courtyard an extension of the interior space by inviting the outside into the inside. (Pallasmaa, 1998, p. 51)

## CHAPTER 9

### INTERPRETING THE DEPTH THEME OF FALLINGWATER'S AND VILLA MAIREA'S WALL USING THIS-EVENSEN'S ARCHITECTURAL ARCHETYPES

Much more so than the breadth and height themes, the depth theme directly contributes or influences the sense of insiderness and outsiderness because it deals with the expressiveness of the relationship between the spaces in front of and behind the wall. In this chapter, I examine the depth theme of the two houses in terms of the *main form*, *building system*, and *openings*. Each theme represents a principal set of motifs. The *main form* is about how conditions such as horizontal, vertical, flat, convex, concave, upright, slanting outward and slanting inward influence the impression of the relative strength between inside and outside (ibid., p. 143-152). The *building system* deals with how a wall form is constructed, i.e., if it is solid, massive, skeletal or some combination that affects our impression of the transition between inside and outside (ibid., p. 153-250). Openings relate to windows and doors that let the outside to the inside and vice versa based on form, profile, frame, location of the door or window area, and so forth.

#### **The Main Form and the Two Houses**

When we analyze Fallingwater's and Villa Mairea's expression of the depth theme, we find that their main forms emphasize horizontality. Fallingwater, however, includes the horizontal and vertical wall expressions in all its elevations. The difference between the two houses' is also marked by different use of materials—rough stone masonry for the assertive vertical walls and white painted concrete for the horizontal



balconies. The only horizontal wall made of solid stone masonry is located at the east main entrance. The motion impulse created by the wall allures us to follow along beside it to the main entry. As figure 9.1 suggests, this wall leads us from the exposed outside to the enclosed and secured inside. One needs to find his or her way through the deep and dark entryway to arrive at the main entrance. Wright's intention to create a hidden and secret entrance insinuates the features of primordial cave.

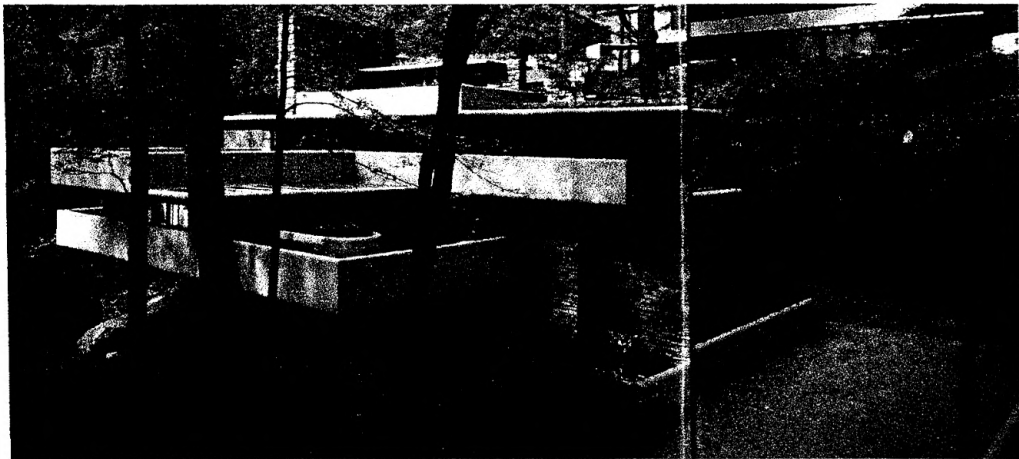
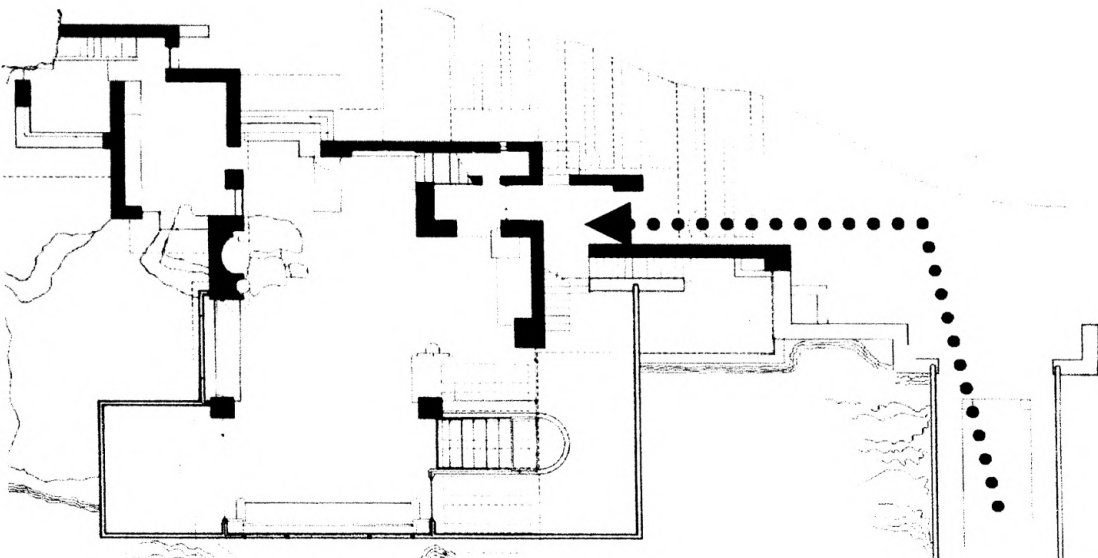


Figure 9.1. The motion impulse created by Fallingwater's horizontal stone masonry wall allures us to follow along beside it to the main entry and then to the enclosed and secured inside. (Kaufmann 1986 p 73)

Unlike Fallingwater, which has both a vertical and horizontal wall expression, the horizontal wall is Villa Mairea's predominant expression of the main form. The emphasis of horizontality in Villa Mairea creates a compressed and compact impression that gives the building a closed and delimiting character (ibid., p. 143). As figure 9.2 illustrates, the closed character of the horizontal wall is further increased by the motion impulse it arouses to follow along beside it in either direction towards the forest, then allowing a direct penetration towards the interior. This sequence enhances the sense of security of the inside. The wall's strong expression of horizontality therefore creates a strong interior, while externally integrating the house with the surrounding landscape whereby its movement is eventually defused by the verticality of the forest.

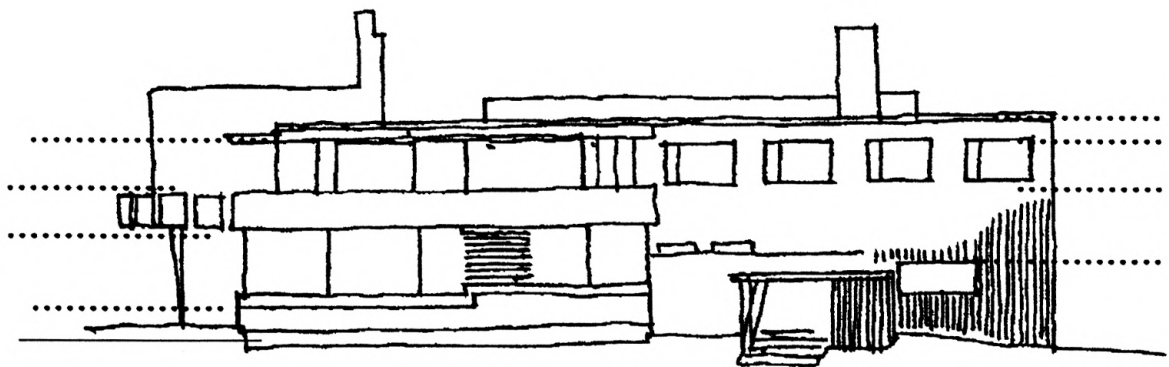


Figure 9.2. Villa Mairea's dominant horizontal wall arouses an impulse to follow along beside it in either direction towards the forest rather than allowing a direct penetration towards the interior. (Pallasmaa. 1998. n. 150)

Similarly, as figure 9.3 suggests, Fallingwater's stretching horizontal balconies of the south elevation create an impulse to follow along beside them in either direction. This motion impulse aroused by the balconies augments the closed and delimiting character of the house. Thiis-Evensen writes that a horizontal wall hides the interior and doesn't allow us to penetrate the wall to meet the inside—rather it leads us past it (*ibid.*, p. 143). The stretching, parallel glass openings convey ambivalent meanings. The projection of the horizontal balconies in every direction suggests a desire to penetrate into the landscape, while letting the exterior penetrate inside. However, the closing and delimiting character of the horizontal wall simultaneously seems to protect the secure interior from outside intrusion. Here, Fallingwater vacillates between two ambivalent meanings of depth expression.

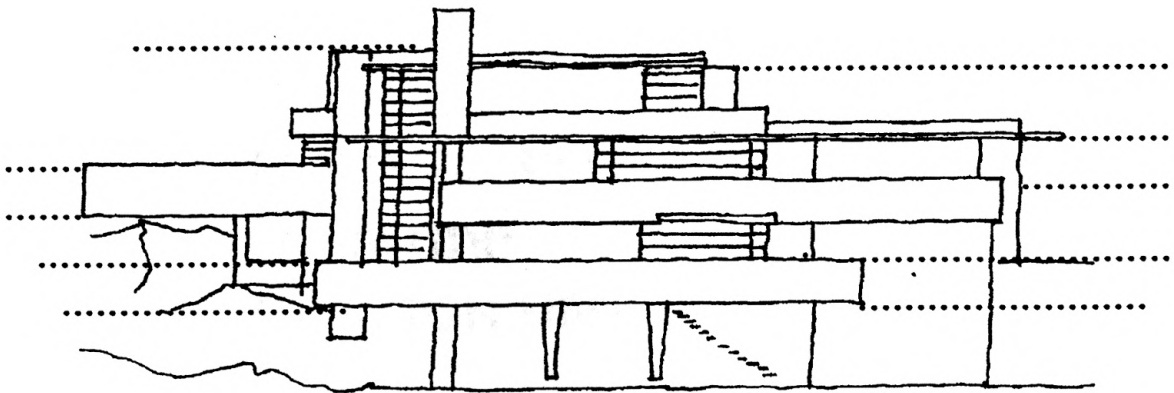


Figure 9.3. Fallingwater's stretching horizontal balconies create an impulse to follow along beside them in either direction infinitely, a pattern which augments the closed and delimiting character of the house. (McCarter, 1994, p. 51)

The other ambivalent meaning conveyed by Fallingwater's horizontal balconies is the expression of weight. The horizontal balconies' detachment from the depth beneath, their light color and smooth surface against the rustic stone masonry walls and the landscape all make the balconies appear light and uplifted in the air. In contrast, the horizontality of the balconies generates a sense of movement in the opposite direction. According to Thiis-Evensen, a horizontal wall expresses weight against the ground (ibid.). Therefore, the horizontal balconies are liberated from the ground by their physical detachment and substance while, at the same time, they suggest a strong tie to the earth through their horizontal forms and expression of weight.

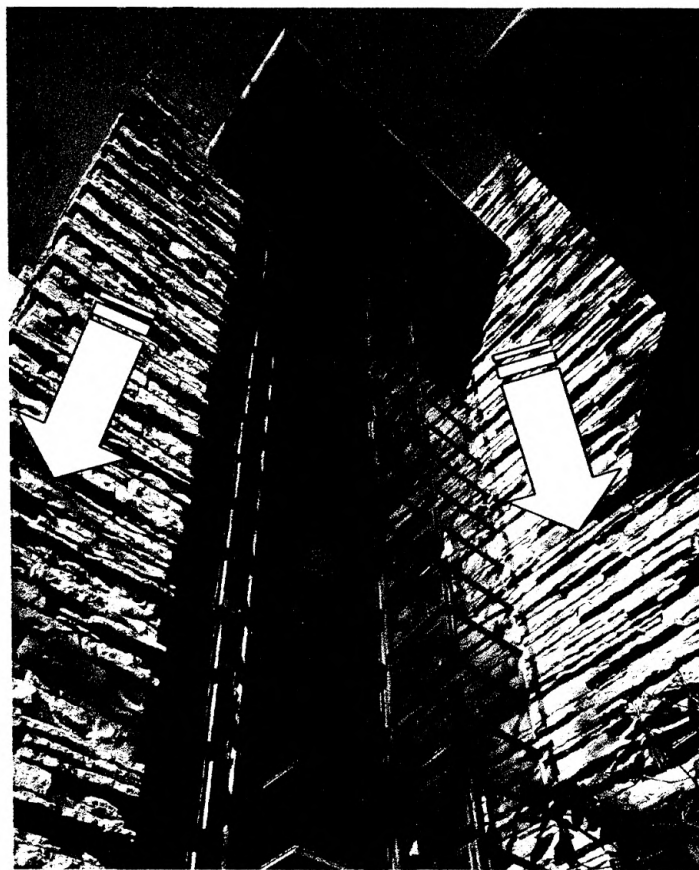


Figure 9.4. The horizontal course of Fallingwater's stone masonry walls demonstrates the compressed and compact impression. (Kaufmann, 1986, p. 111)

The horizontal course of Fallingwater's stone masonry walls demonstrates the compressed and compact impression created by horizontality. Even though the walls soar vertically, as figure 9.4 demonstrates, the horizontally laid stone masonry gives them a compressed and compact impression. Besides, the horizontal patterns of the stone masonry walls accentuate the motion of the horizontal balconies in the same direction. The closing character of horizontality is also present in the framing of the glass windows. Fallingwater's openings are composed of vertical and horizontal steel frames. Though glass dissolves the wall to merge the inside with the outside, the use of horizontal frames, according to Thiis-Evensen, suggests the desire to close the interior. The use of vertical frames, on the other hand, emphasizes invitation into the inside space.

In contrast to the horizontal wall that rejects and shuts out any penetration, the vertical wall is communicative (ibid., p. 145). Thiis-Evensen writes that the horizontal wall draws our attention to the corners at each end, while the rising or vertical wall, concentrates attention around the center of the area (ibid.). Although there is a strong sense of contrast between Fallingwater's vertical and horizontal walls, the vertical chimney wall and southwest corner of the bedrooms' wall rise above the rest of the building to gather the horizontal balconies together. Wright interweaves the opposite expressions of the two wall types to create a dynamic and unified totality. Fallingwater's vertical and horizontal walls generate a sense of motion that seems to continue infinitely in the respective directions. The dynamic stretch of the horizontal balconies infinitely leads our eyes to the opposite ends, while the vertical stone masonry walls guides our eyes to the point where earth and sky seem to meet.

Unlike Fallingwater, which has only horizontal and vertical walls, Villa Mairea features a convex wall, which is found on the southeast side of the studio. This wall resonates with the curved shapes of the entrance canopy and the swimming pool. Although the studio wall is basically a curved wall, as figure 9.5 suggests, it stands out as a gathering middle, like Fallingwater's vertical chimney wall that pulls the horizontality of the building together. This gathering is due to the vertical wooden slat cladding that accentuate the wall's ascension and its relative height that rises just above the rest of the building. This convex wall doesn't only act as a gathering middle to the building but also fuses the house with the landscape by reflecting the surrounding forest by its vertical wooden slat cladding. In this sense, one can say that the studio wall has both the expression of the gathering vertical and the expanding and enfolding nature of the convex wall.

The convex wall of the studio also evokes a strong and dominating quality by its outward expansiveness and an enfolding movement that tends to protect the interior space (ibid., p. 147). In other words, the studio convex wall not only expands outward but also suggests an inward-looking concentration that hints at the importance of the inside space. This wall simultaneously rises vertically upward and thrusts outward to meet us. As a result, it creates a strong corner that draws our attention towards it. Even though the studio wall, by the nature of its form, seems to resist our approach and tends to keep us at a distance, its unique slanting curve gently leads us toward the courtyard. Thiis-Evensen writes that "there is a feeling of being led by the form itself. The wall guides us around the corner" (ibid.). If the shape of the studio wall was a symmetrical curve, we could have been led equally to its opposite ends—to the outside forest and to the inside space of

the courtyard. As figure 9.5 suggests, however, its asymmetrical angle that tilts to the courtyard and clearly directs us in a single direction toward the courtyard. Therefore, in contrast to the resisting nature of convex wall, the modified curved studio wall expresses receptiveness and invitation to the inner part of the building.

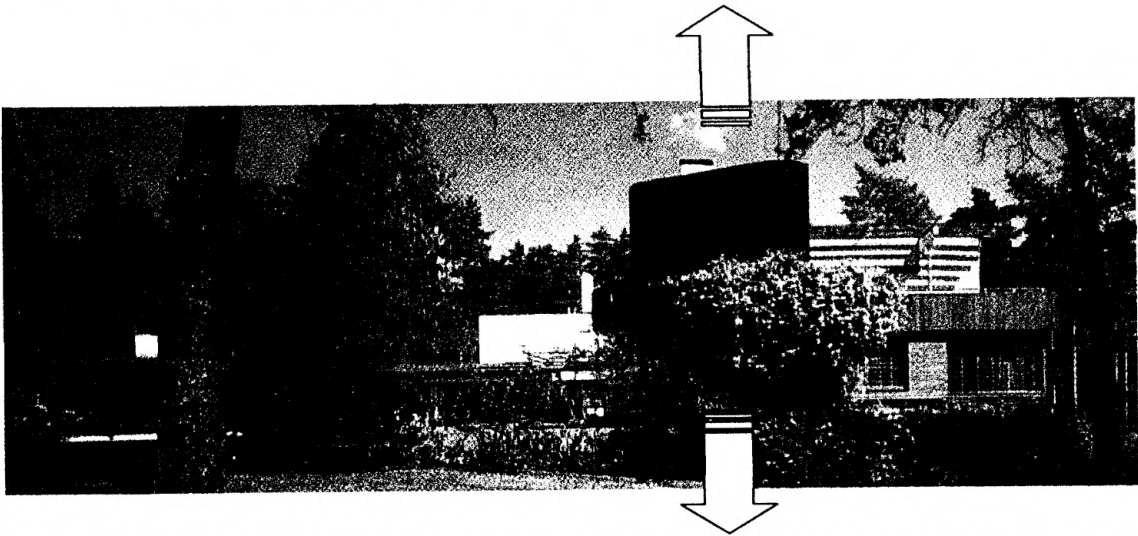


Figure 9.5. Villa Mairea's studio wall stands out as a gathering middle like Fallingwater's vertical chimney wall.

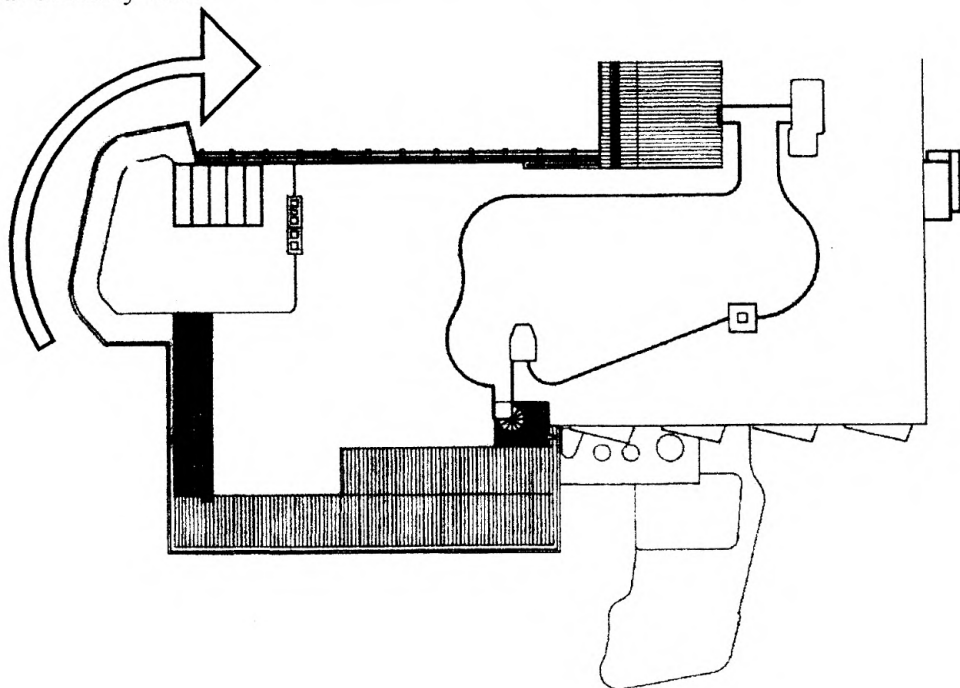


Figure 9.5. The asymmetrical angle of Villa Mairea's curved studio wall tilts to the courtyard to clearly direct us toward the courtyard. (Pallasmaa, 1986, p. 49, 148)

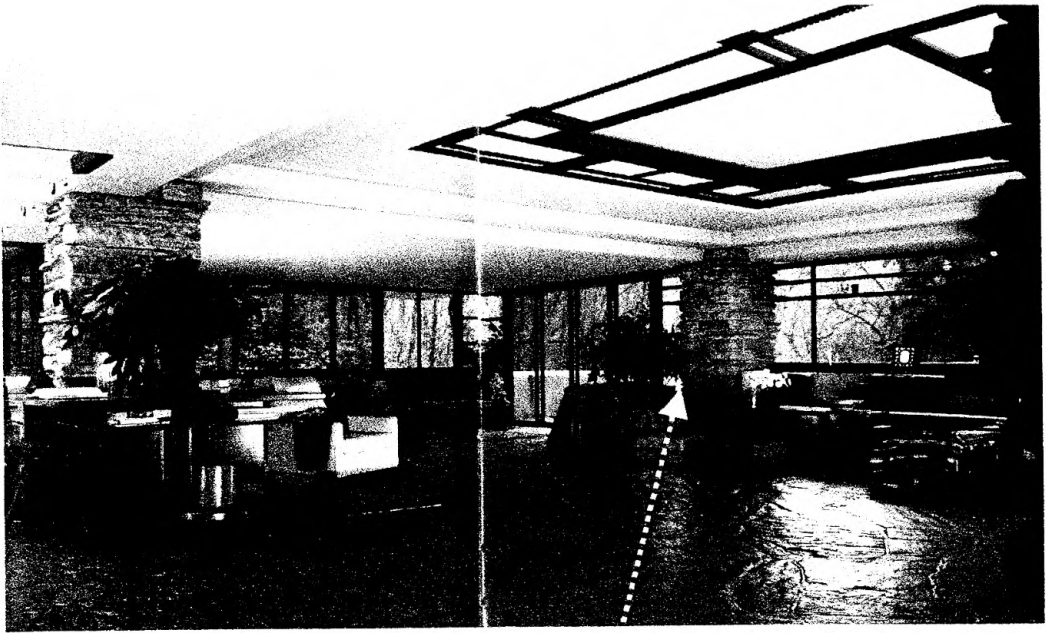
## **Building System**

The building system of Fallingwater is basically massive and built of individual stone blocks laid one upon the other in a horizontal fashion. This stone wall is both supporting and delimiting. The use of a massive wall system in Fallingwater creates a closed and protected interior. Fallingwater's massive stone walls are concentrated on the north side where the house faces against the elevated terrain of the hill. On the southern end, in contrast, the massive stonewalls are almost missing and are replaced by glass walls. This approach emphasizes the sense of insideness and refuge at the rear side of the house by creating enclosure and isolation, and a sense of outsideness and exposure by providing an unimpeded view to the outside through the glass openings.

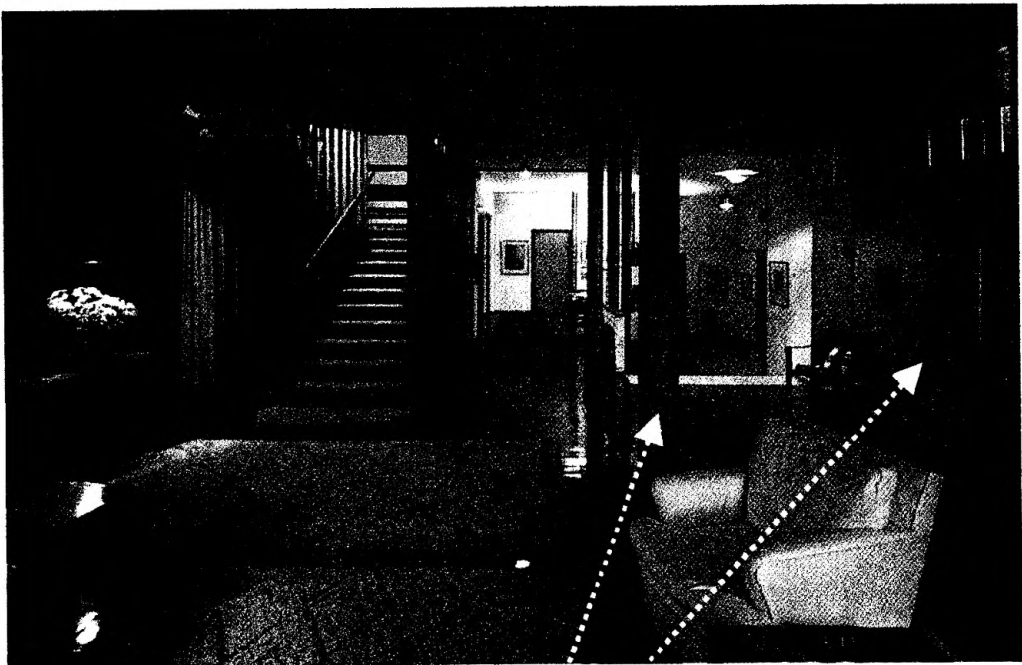
The choice made by Wright to use stone for the massive wall system agrees with Thiis-Evensen, who writes that "the material we immediately associate with a massive wall is stone. Inherently stone has the same quality that the massive wall in its extreme form tries to attain: heavy and closed, earth bound and immovable" (ibid., p. 163). The rough texture of the stone masonry wall, the horizontal pattern of its laying, its thickness and the harmony of its color with the natural bed rock of Bear Run gives it an appearance of solidity and heaviness which imparts a sense of impenetrability.

The solidity and heaviness of Fallingwater's stone masonry wall gives an impression that it has the structural capacity and integrity to support the balconies that project outward. The bright, thin looking balconies, on the other hand, appear very light and easy to support by the massive stone walls. The structural tension created by the unusual cantilever of the balconies and absence of any supporting columns is stabilized by the choice of materials and construction system.





Fallingwater's massive structure and open interior



Villa Mairea's skeletal and layer system

Figure 9.6. Fallingwater's massive structure and open interior. Villa Mairea's skeletal and layer system. (Kaufmann, 1986, p. 78, and Pallasmaa, 1998, p. 107).

In contrast to Fallingwater's massive system, the building system Aalto adopted for Villa Mairea is the layer system. Among the different types of layer systems, the fourth variation of the layered wall—plane on skeleton—is used. All the structural load of the house is supported on concrete and steel columns that stand freely in the interior space. The structural columns appear as single, pairs and sometimes triples. Even though they are laid out following a grid system, the regular reading of their structural system is deliberately confused by means of varying the articulation of individual columns. The materials used to treat the columns, such as rattan binding, pine slat facing and black paint, integrates the columns to the rhythm of the outside forest and dissolves their presence in the inside. Because the presence of the columns is not felt from the outside, the building looks as if it were built with a massive building system.

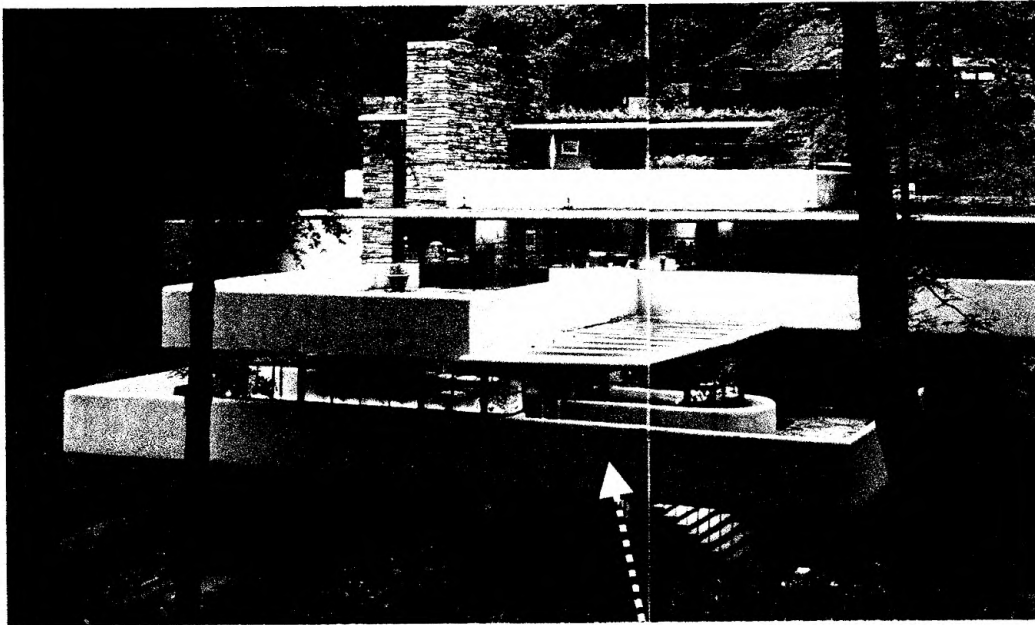
As figure 9.6 illustrates, columns are completely absent in Fallingwater, while they are employed as metaphoric elements in Villa Mairea. The round shape Aalto chose for the freestanding columns affects the freedom of the interior space. Thiis-Evensen writes that a round column doesn't disturb and break our passage but lends freedom to the surrounding space by giving us a choice of either proceeding along and past it or along and around it (ibid., p. 215). It is apparent to see how the form of the columns offer a freedom of shape and movement in the living area.

The sense of freedom created by the columns is further enhanced by the relationship with the floor beneath and the slab above. A wooden ring around the base of the round columns makes them appear firmly anchored to the ground, but the absence of any capital creates an impression that the slabs are not attached to the column shafts. As a result "the slab seems independent of the columns and seem to slid up and down the

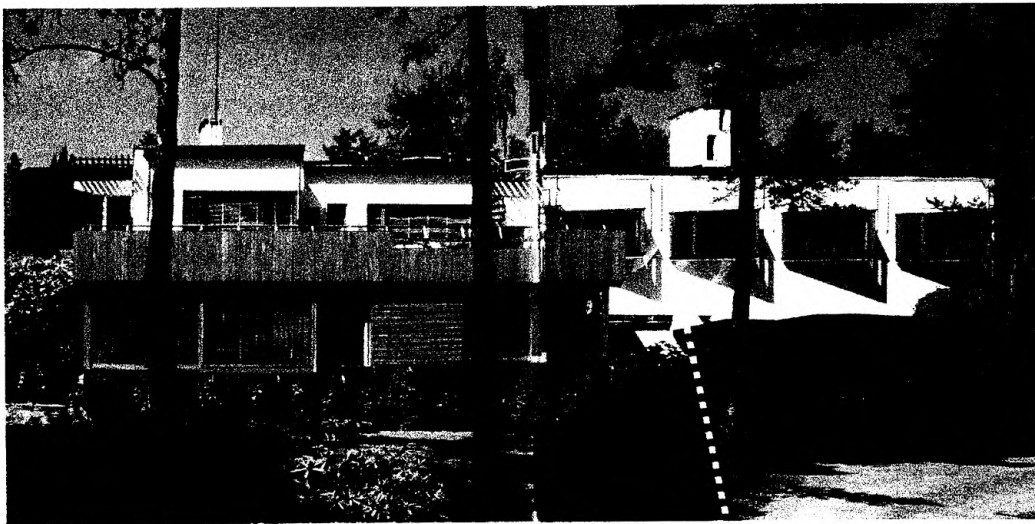
shafts” (ibid., p. 217). This approach reduces the impression of the columns as structural members and emphasizes their artistic and symbolic significance. Aalto seems to instill the columns with an architectural meaning that transcends their mere structural purpose. The sense of freedom conveyed by the round columns in the interior space wouldn’t have been the same if square columns had been used.

Figure 9.7 suggests that the presence of the wall in Villa Mairea is more strongly felt than in Fallingwater because Villa Mairea’s wall maintains a continuous surface and dominates its openings. In Villa Mairea, the openings rather look pierced on a large monolithic solid wall surface. In contrast, Fallingwater’s main elevation wall is fragmented to horizontal concrete balconies and roof overhangs. The wall surface seems to be equally shared by openings and solid parts.

Although Villa Mairea’s white painted wall appears as monolithic and molded, a closer look reveals a texture of individual concrete blocks beneath the thin plastering. As discussed earlier, the strong horizontality of the house, along with the massive looking monolithic walls, give the house a sinking effect because of the impression of weight. As the house is more closely experienced, however, the light materials used, such as wood and large spanning glass windows, and the shallow depth of the window profiles give the building with a sense of lightness. Consequently, the sinking effect created by the accentuation of horizontality is counterbalanced, and the house is left in tension between rising and sinking, which generates an air of suspense.



Fallingwater's wall  
fragmented to horizontal strip  
walls



Villa Mairea's continuous surface wall

Figure 9.7. The presence of Villa Mairea's wall is more strongly felt than Fallingwater's because Villa Mairea's wall maintains a continuous surface, while Fallingwater's is fragmented into an equal degree of openings and solids. (Kaufmann, 1986, p. 74-75, and Pallasmaa, 1998, p. 7-8, 150)

## Openings

Window openings are another important architectural feature that influence the inside–outside relationship of the two houses. Most of Fallingwater’s window openings assume a horizontal form, except the vertical window that runs continuously from the southwest corner of the kitchen to the last floor of the study room. The orientation and form of the windows affect the inside–outside relationship—vertical openings relate the flow of the inside to the outside and vice versa, while horizontal openings, like a horizontal wall, resist external penetration and potentially shut the inside from the outside.

The vertical window openings employed between Fallingwater’s two vertical masonry walls further accentuate the expression of verticality. The vertically oriented windows admit the outside into the inside and strengthen the contact with the outside landscape. Wright has also oriented the horizontal windows in line with the horizontally stretching balconies that enhance the horizontality of the building. Further, as figure 9.8 illustrates, Fallingwater’s horizontally oriented windows tend to cut across the inside to the outside thereby strengthening the sense of the house’s insideness. These windows offer a view to the surrounding landscape but resist any visual access from the outside, thereby, fulfilling the desire to see with out being seen.

Generally, the horizontally oriented window is the dominant Villa Mairea’s openings. Aalto seems deliberate in choosing this form to accentuate the horizontality of the house. Thiis-Evensen writes that “the vertically oriented window accentuates verticality, the horizontally oriented window stresses horizontality” (ibid., p. 263). Similar to the horizontal wall that guides us in either direction, “the horizontal or oblong

[window] form will suggest a motion that cuts across the inside to outside contact” (ibid., p. 261). At this point we can see that Villa Mairea’s secured interior is not only the result of a rejecting and protecting horizontal wall, but it is also stimulated by the horizontal form of openings that discourage a direct penetration to the inside. The projecting windows of the children’s bedroom, however, are the exception being bay windows. Contrary to the horizontal windows, these bay windows enhance the inside-outside relationship. The expanding nature of the windows appropriates the exterior space optically and, in terms of light, expresses a desire for the inside to meet the outside (ibid., p. 277).

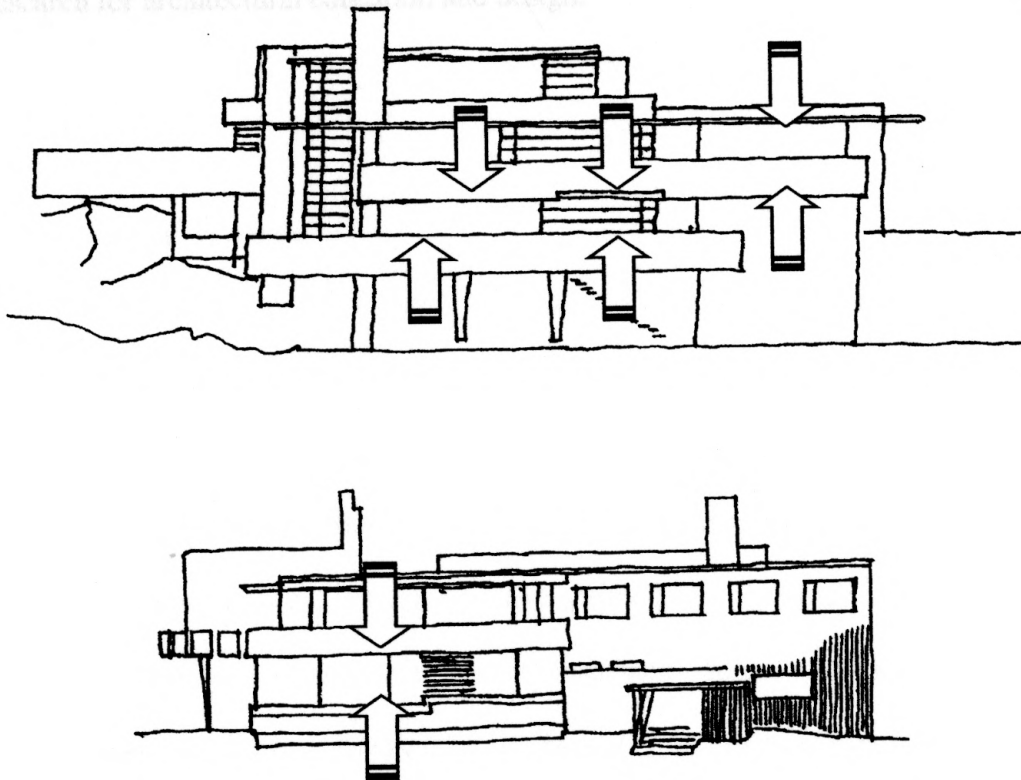


Figure 9.8. Fallingwater’s and Villa Mairea’s horizontally oriented windows tend to cut across the inside to the outside thereby strengthening the sense of insiderness of the houses. (McCarter, 1994, p. 50, and Pallasmaa, 1998, p. 150)

The above interpretation of the wall marks the end of a Thiis-Evensen interpretation of the two houses and the main body of the thesis that started in chapter 4. In the previous 5 chapters, Fallingwater and Villa Mairea have been examined through Harries' natural symbols of inside-outside, light-dark, horizontal-vertical, up-down, center-periphery, and Thiis-Evensen's architectural archetypes of floor, wall and roof in terms of the three existential qualities of motion, weight and substance. The next chapter, as conclusion, rounds-off the interpretative case study of the two houses by summarizing the findings of my research which identifies the experiential similarities and underlying design principles recurring in both houses. The conclusion also discusses implications of my research for architectural education and design.

### Harries' Natural Symbols

The interpretation of Wright's Fallingwater and Alvaro's Villa Mairea through Harries' five natural symbols (inside-outside, light-dark, horizontal-vertical, up-down, and center-periphery) indicates that there are thought-provoking experiential parallels between the two houses. Both houses have a deep, dark, circuitous path that leads to the main entry. The protective dark canopy and screen poles screening of Mairea, and the side masonry walls and concrete trellis of Fallingwater declare one's approach to a safe interior. Visual security is maintained by the darkly lit entryway, which strengthens one's feeling of refuge. While both Fallingwater and Mairea have a progressive transition from inside to outside through the deep, dark, circuitous paths that lead to the inside, the transition from inside to outside is more elaborate in Fallingwater than in Mairea, which

## CHAPTER 10

### CONCLUSION

In this chapter, I conclude my thesis by integrating the interpretative case study of Wright's Fallingwater and Aalto's Villa Mairea. I commence by summarizing Harries' theory of natural symbols and Thiis-Evensen's architectural archetypes, identifying the experiential similarities of the two houses through comparison and contrast. In the second section, I outline and discuss major underlying design principles that assume a universal level of architectural experience and help to create a non-arbitrary architecture. The conclusion also discusses implications of my research for architectural education and design.

#### **Harries' Natural Symbols**

The interpretation of Wright's Fallingwater and Aalto's Villa Mairea through Harries five natural symbols—inside-outside, light-dark, horizontal-vertical, up-down, and center-periphery—indicates that there are thought-provoking experiential parallels between the two houses. Both houses have a deep, dark circuitous path that leads to the main entry. The projecting rustic canopy and spruce poles screening of Mairea, and the side masonry walls and concrete trellis of Fallingwater declare one's approach to a safe interior. Visual security is maintained by the darkly lit entryway, which strengthens one's feeling of refuge. While both Fallingwater and Mairea have a progressive transition from inside to outside through the deep, dark long circuitous paths that lead to the inside, the transition from inside to outside is more elaborate in Fallingwater than in Mairea, which



has a relatively shallow progression. The use of deep balconies, generous roof overhangs and concrete trellis in Fallingwater generate deeper in-between zones that make the transition smoother than Mairea's.

The depth created at the boundary between the inside and outside of Fallingwater offers greater opportunity to see to the outside without being seen. The choice of building site to position the house on elevated ground and location of the rooms on a relatively higher level provide an unimpeded view towards the surrounding outside. Though the gentle floor rise of Villa Mairea's interior subtly suggests a desire for an unrestrained view to the outside, the relatively flat topographic nature of the site and shallow transition from the inside to the outside diminishes the degree of seeing without being seen.

Both Fallingwater and Villa Mairea predominantly emphasize horizontality in their exterior expression of form and interior flow of space. The horizontality of the buildings establishes a parallel axis to the earth. Even though horizontality prevails in the two houses, the spreading and indefinite expanding tendency of the houses is gathered and held together by assertive vertical elements— Fallingwater's fireplace wall and Villa Mairea's wooden slat-clad studio wall. Further, the horizontal expression of the houses conforms to the secular purpose of the buildings in contrast to a sacred structure, which emphasizes a vertical expression.

Fallingwater's cantilevered balconies and roof overhangs, which project in all directions demonstrating a supreme will to survive in the face of the depths beneath, make the horizontal expression of Fallingwater appear more dynamic than Mairea. The transparent glass surfaces found between those horizontal elements dissolve the presence of the wall as a vertical boundary. Wright's regard of the wall as "no longer the side of a

box” but a medium “to bring the outside world into the house and let the inside of the house go outside” (Wright, p. 38) is completely demonstrated in Fallingwater. The dematerialization of the wall has given way to a dynamic expression of horizontality. Fallingwater gains spatial excitement from the interplay of the massive and solid horizontal balconies and the airy open spaces in between. Jacobson describes this expression as interpenetration of “something and nothing” (Jacobson, 1990, p. 46).

In Villa Mairea, however, the expression of horizontality is quite different. Horizontality in Villa Mairea is expressed by the horizontal deployment of space, subtle alignment of openings, and surface material treatment. In Fallingwater the vertical chimney wall that reaches upward establishes a seemingly vertical axis, a gathering middle to the horizontal space and balconies, and simultaneously establishes a functional and formal center of the house. In Villa Mairea, verticality is subtly expressed through a vertical pattern of cladding materials.

In both houses, nature is exploited as the source and end of architectural expression. The two houses exhibit a similar approach of relating the outside with the inside by a metaphorical representation of outside elements in the enclosed inside. The intermingling of outside elements into the inside space is used as one way of blurring the boundary between the inside and outside. The presence of the dry, natural boulder at the fireplace along with the wet appearing waxed flagstone floor of Fallingwater reflects the outside natural bedrock and the stream of Bear Run. The non-structural spontaneous wooden poles and deliberate treatment of the columns to confuse the regular structural system in Mairea reflect the surrounding forest rhythm. The juxtaposition of the rustic with the modern has fused the two houses to their natural landscapes. Though the

languages of inside-outside, light-dark, vertical-horizontal, center and periphery of the two houses is discussed separately, they relate to each other to establish a unified whole.

The relationship between the inside and outside of Fallingwater and Villa Mairea appears to be influenced by other natural symbols. The architectural expression of these other natural symbols either heightens or weakens the sense of insiderness and outsiderness. Primarily, the relation between center and periphery determines the sense of insiderness and outsiderness in both houses. Villa Mairea's inside-outside relationship assumes a horizontal axis, whereas Fallingwater assumes both horizontal and vertical axis. Dark is related to the enclosed and tempered inside while light is related to the exposed outside. In both houses, the relation of the dark inside with light outside has fulfilled the desire to see without being seen.

The level of contrast demonstrated by the two houses, however, is not only limited to the five pairs of natural symbols emphasized here, but also includes additional themes like wet-dry, and something-nothing. The surrounding forest of both houses, Bear Run at Fallingwater, the sauna and the swimming pool at Villa Mairea evoke a damp, dark, cool and tempered atmosphere in contrast to the dry, warm and well lit insides of the two houses. The interplay of solid volumes with deeply recessed windows and transparent glass surfaces establish a contrast between "something" and "nothing."

All these natural symbols have an intricate relationship to each other. The rich architectural expression engendered in the two houses is based on the linked contrast of all these natural symbols. The contrasting pairs in both houses generate harmony through continuity and linkage. Eventually, we don't separately encounter each natural symbol in the two houses, but experience a contrasting whole in its totality as a unity.

The unity of natural symbols is not limited among themselves but it is also consistent with nature. When contrast and harmony is achieved with nature, a dialogue between the building and the site generates an ambivalent expression. Neither the building nor the site is dominating but they accentuate each other. Wright's Fallingwater and Aalto's Villa Mairea have brought the respective sites into a heightened state of conscious existence. Responding to the forces of the site and taking nature as a point of departure has enabled the two architects to engender the two houses with natural symbols that involve a universal level of experience and timeless expression.

### **Thiis-Evensen's Architectural Archetypes**

The interpretation of Wright's Fallingwater and Aalto's Villa Mairea through Thiis-Evensen's architectural archetypes indicate that the floor and roof of the two houses share many common characteristics and expressions while the walls of both houses portray different expressions that serve a similar end—creating an inside in the midst of an outside.

The examination of Fallingwater's and Villa Mairea's floor has revealed that the architectural expression of both houses reflects the strong relationship they have with the natural floor of their respective sites. Fallingwater inherits its dynamic and perilous architectural expression from the hazardous and sinking effect of its natural floor; and Villa Mairea, from its relatively calm and flat site. Both houses harmonize with their natural floor and enhance its features.

The rusticity, formal expression and material detailing of the two houses is also driven by their respective natural floors. Fallingwater brings the movement of the stream,

the layers of rock ledges, the depth of Bear Run and dampness of the forest into life, while Villa Mairea echoes the dampness, coolness, and repose of the natural floor by accentuating its tranquility. In this sense, the houses emerge from their respective natural sites to become a living architecture and ultimately disappear into it. The houses and the sites live together, integrate each other, and speak to each other.

Fallingwater's and Villa Mairea's floors engage in constant dialogue with the natural floor, but in different ways—Fallingwater through detachment, levity, and defiance of gravity. Villa Mairea, through calmness, intimate attachment and close ties to the earth. The type of different floor finishing materials used in Fallingwater and Villa Mairea accentuate the sense of attachment and detachment of the floors. Villa Mairea's floor materials, in contrast to its attached floor, conveys levity, tactile and optical detachment through reflection, brilliance, motion, expansion and lightness. In contrast, Fallingwater's floor materials, contrary to its detached floor, evoke strong attachment to the ground through heaviness and wetness. In this sense, it is possible to infer that the floors of the two houses bear a dual meaning of attachment and detachment, structurally and materially.

The floors of the two houses also generate different senses of motion—Fallingwater's floor concentrates movement to a central space and again leads back to the outside in every direction, while Villa Mairea creates a diagonal pattern of movement that meanders into the forest. Fallingwater's floor motion is consistent throughout the building, while Villa Mairea's floor changes from one space to another, delimiting specific places and giving them a sense of centeredness. As directional themes, the stairs of the two houses relate the inside and outside with different expressions—Wright's

suspended stair expresses humility and descent to the hazardous and exposed outside, whereas Aalto's stair expresses potential exaltation and uplift to a secured and private interior.

The discussion of the two houses' roofs discloses that the inside of the roofs of the two houses vertically relate to the sky through detachment, sense of lightness, and uplift. From outside, these roofs are and strongly associated with the earth through heaviness and expression of the phenomena of the ground's texture and substance. As a result, by a rising and sinking motion, the roofs simultaneously accomplish a dual purpose of the roof and the floor. The two houses' roofs also horizontally relate the inside with the outside by a sense of an outward motion. Below the roofs, one finds shelter, safety, and an enclosed refuge that enables one to see outside without being seen. Above these roofs, one finds himself on an exposed and uplifted position where he can control the surrounding without any obstruction. In this sense, the houses act simultaneously as a cave—a place to take refuge—and a hilltop—a site for unimpeded views.

The findings of this thesis suggest that horizontal and vertical motion of Fallingwater's and Villa Mairea's wall emphasizes openness and establishes a dynamic link between the inside and the outside. Fallingwater is so fused with the natural landscape that it is hardly possible to examine some of its elevations thoroughly. Its entrance, for instance, has to be discovered gradually, unlike Villa Mairea's conspicuous entrance canopy—the former involves other sensory experiences besides the visual while the later emphasizes only the visual.

Despite this fact, it has been difficult to analyze the main elevations of Fallingwater and Villa Mairea through Thiis-Evensen's theory thoroughly. The elevations

of the two houses express more than one motif and sometimes it is difficult to categorize them into any of Thiis-Evensen's motifs. Fallingwater's entrance and Villa Mairea's left elevation emphasize a spatial depth which Thiis-Evensen never discussed in his theory.

The vertical sense of motion of the two houses involves their major motion and weight expression—splitting for Fallingwater, and rising and sinking for Villa Mairea. Through the splitting motif Fallingwater resists any visual access from the outside to the inside and thereby fulfills one's desire not to be seen. Villa Mairea, on the other hand, accentuates the same idea by creating a strong sense of refuge and secured interior at the lower floor and an unimpeded view to the outside from the upper floor.

Unlike Fallingwater, which has both a vertical and horizontal form of the wall, the horizontal wall is Villa Mairea's predominant expression. The emphasis on horizontality in Villa Mairea creates a compressed and compact impression that gives the building a closed and delimited character. The horizontality of both houses creates a strong interior by generating an impulse to follow along beside them in either direction. Further, the horizontality of the two houses, though Fallingwater hovers in the air, suggests a strong tie to the earth due to the expression of weight.

In the dominance of their horizontality, the two houses feature a vertical element that pulls the horizontal walls together—Fallingwater through the vertical stone chimney walls, and Villa Mairea's through the vertical wooden slat clad of the studio wall. Further, Villa Mairea features a convex wall, which resonates with the curved shapes of the entrance canopy and the swimming pool. While these curved forms direct our movement to and around the house, they also suggest the tendency of the house to

dissolve into the landscape. In contrast to Fallingwater's rectilinear shapes, Villa Mairea's curved shapes add more of the formal qualities of organic nature to the building.

Although Fallingwater's massive system and Villa Mairea's skeletal system appear different, they indicate the influence of their respective sites, and both approaches serve the same end of strengthening a sense of interior and a link to the outside. Fallingwater's massive wall is derived from the rock ledges of Bear Run, while the skeletal system of Villa Mairea is derived from the surrounding forest-horizontal.

The presence of the wall in Villa Mairea is more strongly felt than in Fallingwater because Villa Mairea's wall maintains a continuous solid surface that dominates its openings. In Villa Mairea, the openings rather look pierced into a large monolithic solid wall surface, whereas horizontal concrete balconies and roof overhangs fragment Fallingwater's wall. The wall surface seems to be equally shared by openings and solid parts.

Window openings are the other important architectural features that influenced the inside-outside relationship of the two houses. Most of Fallingwater's and Villa Mairea's window openings have a horizontal form, except a few vertical windows. The orientation these windows offer is a view to the surrounding landscape while at the same time resisting any visual access from the outside.



## **Underlying Design Principles**

The interpretation of Wright's Fallingwater and Aalto's Villa Mairea through Harries' theory of natural symbols and Thiis-Evensen's architectural archetypes indicates that there are four major concepts—(a) nature as a source, means, and end; (b) linked contrasts; (c) prospect and refuge, and (d) an inclusive multi-sensory experience—that underlie the design of the two houses and give them a qualities of a non-arbitrary architecture.

### **a. Nature as a source, means, and end**

As we have seen in Chapter 2, one key task of architecture is “interpreting the world as a meaningful order in which the individual can find his place in the midst of nature and community” (Harries, 1983, p. 16). Nature and culture, as the essence of our being-in-the-world, are the bases for a non-arbitrary architecture. In line with Harries' argument for architecture as an expression and interpretation of the essence of human life, Wright and Aalto consistently refer to nature and culture as the source, means, and end in the architecture of Fallingwater and Villa Mairea.

As I described above, the ordering principle of nature in the design of the two houses primarily is derived from the respective sites. The rusticity, formal expression, and material detailing are inherited from the natural landscapes. Fallingwater and Villa Mairea witness the influence of nature as the source and means of their design by responding to the peculiarities and forces of their sites, literally and metaphorically. By doing so, each of the two houses emerge from the site and bring the site into existence, and ultimately, disappear into it in total harmony.

Wright and Aalto share a conceptual affinity in their attitude towards nature. They believed and argued that natural law should be the basic ordering principle of their architecture. Wright said that it is “only by patient study to acquire knowledge of nature [that] guiding principles [are] ever to be established by the architect” (Wright, 1974, p. 89). Similarly, Aalto asserted that “the profoundest feature of architecture is a variety and growth reminiscent of natural life. I should like to say that in the end this is the only real style in architecture” (Aalto, 1978, p. 34).

Studying the basic nature of people’s being-in-the-world, and the relationship that might exist between nature and building, Wright identifies a number of design approaches. Wright claims that organic structure in nature is the only basis for an architecture that can live and let live because it never can become a mere style. Explaining the relationship between the site and a building, Wright states that “it is in the nature of any organic building to grow from its site, come out of the ground into the light—the ground itself held always as a component basic part of the building itself. And then we have primarily the new ideal of building as organic. A building dignified as a tree in the midst of nature” (Wright, 1954, p. 50).

Wright’s reference to nature as the ultimate inspiration and source of design gives strong support for Harries’ argument for a non-arbitrary architecture, which is founded on nature and culture. In regard to house design, Wright argued that a dwelling should express “a natural performance, one that is integral to site, integral to environment, integral to the life of the inhabitants. A house integral with the nature of material . . . all the elements go into and throughout the house” (ibid, p. 134). Wright said that he “could draw inspiration from nature herself,” and declared that there was no need for him “to

wander among the objects and traditions of the past, picking and choosing his way by the personal idiosyncrasy of taste, guided only by personal predilection” (ibid, p.22). Further, Wright said that “ primarily, nature furnished the material for architectural motifs out of which the architectural forms as we know them today have been developed, and, although our practice for centuries has been for the most part to turn from her, seeking inspiration in books and adhering slavishly to dead formulae, her wealth of suggestion is inexhaustible; her riches greater than any man’s desire” (Wright, 1955, p. 23).

Similarly, Aalto pursued nature as a source and means to create buildings integral to the site and integral to the life of the inhabitants. Besides the formal expressions, his material detailing echoes the influence of nature on his designs. For instance, he employs the concept of rusticity and the image of the ruin to reveal the aesthetic of nature. His detailing features the aging process materials acquire with the passage of time. Aalto had a particular approach that involved composing two opposite qualities side by side. For instance, the lustrous marble next to the eroding wood, and polished copper next to its worn greening with time, the glittering surface of glazed tile next to deteriorating stucco. Aalto’s use of the image of the ruin heightens the authenticity of his buildings because it creates a sense of permanence and experiential depth.

Aalto aims simultaneously at the aesthetic excitement of the senses and the imaginative utilization of the site’s peculiarities. As seen in Villa Mairea, Aalto literally represents nature by the use of the rustic stone wall, rustic stair, and the turf roof of the covered terrace, while he metaphorically represents nature by echoing the forest rhythm in the wooden poles and columns of the interior space. These elements create a strong affinity with nature and engage the house with its landscape inseparably. Further, the

recurring elements of nature from the door handle to the rustic stair and wall generate a strong tactile experience. In short, Aalto insisted on the expressive transformation of nature into sense-experience through architecture.

Aalto and Wright indicate that architecture as the genuine expression of our being-in-the-world only responds to our need for dwelling when it springs from nature because we, the dwellers, are also results of the same natural laws. Wright said that “we may deduce laws of procedure inherent in all natural growths, to use as basic principles for good building. We are ourselves a product of such natural law. These manifestations of principle are harmonious with the essence of our own being and so perceived by us to be good” (ibid, p. 26). Similarly Aalto said that, “architecture should always offer a means whereby the organic connection between a building and nature (including man and human life as an element of greater importance than others) is provided for (Arkkitehti, 1941, p, 34).

Aalto’s claim for nature as the “only real style in architecture” parallels Harries’ argument for a non-arbitrary architecture that arises from nature and culture. It is not only Aalto who is in agreement with Harries’ argument but also Wright himself who asserted that the architect must gain a knowledge of nature to establish a set of guiding principles for design.

A phenomenological understanding of the lifeworld becomes crucial at this point to decipher the underlying natural laws that define our being-in-the-world. As Wright argued, this understanding could be drawn “only by patient study, to acquire knowledge of nature in this interior sense, are guiding principles ever to be established by the architect” (Wright, 1955, p. 28). The carefully acquired knowledge of nature and a deep

study and understanding of the life world of the inhabitants enables us to create a true architectural expression of form that follows “nature[’s] pattern” and the lived experience of the users because “true form is always organic in character” (ibid.). In short, both Wright and Aalto strongly emphasize nature as a source, means, and end of architecture in their thinking and practice.

### **b. The Concept of Prospect and Refuge**

The idea of refuge and outlook—a desire to see without being seen—is the next recurring concept identified in the design of Fallingwater and Villa Mairea. The polarity of refuge and outlook is one of the prime essences of creating an inside in the midst of outside. As the finding of the interpretation clearly indicates, every pair of contrasting natural symbols directly and indirectly accentuates the two houses’ sense of refuge and prospect.

Jay Appleton (1975) argues that the satisfaction we derive from the aesthetic contemplation of an environment arises from a spontaneous reaction to that environment as a habitat, that is to say as a place which affords the opportunity for achieving our simple biological needs. Habitat theory postulates that aesthetic pleasure in landscape derives from the observer experiencing an environment favorable to the satisfaction of this biological need. Habitat theory is about the ability of a place to satisfy all our biological needs. Our most basic biological need is to attain a sufficient control over our environment in order to survive and flourish (ibid, p. 68-70).

Habitat theory asserts that the relationship between the human observer and the perceived environment is basically the same as the relationship of a creature to its habitat.

Appleton calls the unimpeded opportunity to see as “prospect”, whereas the opportunity to hide as “refuge.” The desire to see without being seen as something conducive to, but more limited than, the desire to satisfy all our biological needs is called prospect-refuge theory. Prospect-refuge theory postulates that, because the ability to see without being seen is an intermediate step in the satisfaction of many of those needs, the capacity of an environment to ensure the achievement of this condition becomes as immediate source of aesthetic satisfaction (ibid, 70-72).

Appleton indicates that the theory of prospect and refuge is based on natural rather than cultural symbolism. Natural symbolism is a symbolism never set up, never arranged by anyone—a wholly natural phenomenon and an intrinsic part of the survival behavior of the human species. However, cultural symbolism is humanly contrived symbolism in which ulterior meanings can be recognized by any one who has learned to make the established associations wherever the symbolic object is encountered (Appleton, 1990, p. 8-22). The objects employed to symbolize prospect and refuge, and the manner and intensity they symbolize them in different ways can achieve the potential variety of aesthetic experiences, which can be derived from the contemplation of landscape. The spatial arrangement of the symbols, equilibrium of prospect and refuge symbols, and physical media by which such arrangement is communicated to the observer are other ways of achieving aesthetic experiences (Appleton, 1975, p. 74).

The architectural historian Grant Hildebrand (1991) attempts to apply prospect and refuge theory to architecture. Relating this theory to the house, Hildebrand writes that when a house combines strong refuge and prospect signals inside and outside, then it may be argued that it provides conditions that human beings are preconditioned by nature to

select as pleasurable in their habitations. Further, Hildebrand corroborates Appleton's argument by restating that there is a deeply seated, genetically driven, human predilection for conditions of prospect and refuge within landscape settings (ibid, p. 16).

Hildebrand then examines Frank Lloyd Wright's houses in light of Appleton's prospect and refuge theory by asking why and how Wright's houses were very much liked by his clients despite the many severe constructional and structural inadequacies with which many of the houses are afflicted. Hildebrand then argues that a closer examination of Wright's houses led him to believe that "the houses Wright designed after 1902 almost all held an extraordinarily rich array of these analogies, at several hierarchical levels" (ibid.).

Using Wright's houses, Hildebrand describes the architectural symbols that create a sense of refuge, prospect and hazard. He identifies the deep overhanging eaves, windows, alcoves, recesses, conspicuous balconies as architectural symbols of prospect and refuge that signal the epitome of a place to see without being seen, and the dense vegetation, ravine bridge, cliffs, rapids and falling water as hazard symbols that intensify the effect of prospect and refuge, while they are intensely pleasurable in themselves. Generally, Hildebrand strongly relates prospect-refuge theory with the inside-outside relationship, which is in accord with the major arguments of Harries' natural symbols and Thiis-Evensen's architectural Archetypes.

There is a connection between Thiis-Evensen's architectural archetypes, Harries' natural symbols and Appleton's prospect and refuge theory. As Harries said that natural symbols never go past us, but speak to us, Appleton as well says that one needs no special education or cultural conditioning to appreciate these symbols because they speak

to our basic biological and behavioral needs, Thiis-Evensen's theory further highlights how these natural symbols speak to us through the existential expressions of motion, weight and substance.

There is also a conceptual parallel among the three theories concerning the influence of culture on these symbols. Whereas Harries writes that human cultures appropriate the natural symbols in different ways, Appleton argues that our habits of environmental perception, while they are invariably modified and shaped by cultural, social, historical and personal experiences, are not created out of nothing but rather are the derivatives of mechanisms of survival behavior which were already there as elements of our innate make-up. Furthermore, Thiis-Evensen describes the architectural experience created by these symbols as the universal level of experience where there is "a common language of form which we can immediately understand, regardless of individual or culture" (Thiis-Evensen, 1987, p. 17).

As we have seen from the interpretation of Fallingwater and Villa Mairea through Harries' natural symbols and Thiis-Evensen's architectural archetypes, the concept of prospect and refuge in the two houses is achieved at various levels. According to Appleton's explanation, prospect is "perceiving, obtaining information" and refuge is "hiding, sheltering or seeking protection" (Appleton 1990, p. 26). On the one hand, the age-old need to seek refuge in dark interiors or enclosed interiors is tied to the need for privacy, the need to be left alone or, in other words, to avoid the look of others—a situation related to Harries' and Thiis-Evensen's quality of insideness. On the other hand, prospect is related to Harries' and Thiis-Evensen's outside whereby exposure and unimpeded view prevail.



Light is related with prospect and dark with refuge because according to Appleton, “light is the one fundamental requirement for the realization of any prospect” (Appleton, 1975, p. 78). Discussing the relationship of source of light, observer, and landscape, Appleton exhaustively elaborates the impact of light and concludes that “much of the variation in prospect and refuge within a landscape is achieved by such variations in the passage of light” (ibid.). Therefore, the desire “to see without being seen”, which is a combination of both prospect and refuge, could be fulfilled by the nature of light achieved on the building and the quality of darkness maintained around the observer, respectively.

Similarly, the prospect-refuge polarity is respectively related to up and down themes, since up is related to light and down with dark. Further, up is related to what Appleton refers to as “elevated summits” (Orians, 1980, p. 60-61). “Flatness is usually regarded as boring and depressing to humans and we try to escape from flat areas if we can. Cliffs and bluffs attract us and this attraction is often associated with strong desires to climb to the top” (ibid.). Harries’ center and periphery theme as well relates to the concept of refuge. The sense of insiderness, enclosure and security one experiences when attaining the center fulfils the need for refuge. Simultaneously, the nature of the center to expand outwardly and indefinitely once attained, facilitates the desire to have an unimpeded view to the outside from a secured position, which is prospect.

In short, it is possible to infer that the creation of an inside in the midst of outside through the three existential expression of motion, weight, and substance and linked contrasts of the natural symbols respond to our innate human predilection for the conditions of prospect and refuge.

### **c. The idea of linked contrasts**

The next underlying design concept that recurs at every scale of Fallingwater and Villa Mairea is the idea of linked contrasts. As we have seen in the earlier chapters, the two houses are engendered by a powerful set of linked contrasts which Harries describes as natural symbols—inside-outside, light-dark, horizontal-vertical, up-down, center-periphery, wet-dry, exposed-tempered, something-nothing, and so forth.

Discussing the theory of contrasts, architects Max Jacobson, Murray Silverstein, and Barbara Winslow (1990) ask what constitutes a good or successful house design? That is, what is it about the physical form of a dwelling that makes it supportive, vibrant and appealing to both the intellect and the senses? (ibid, p. viii-ix). These architects argue that the design strategies they find most important both in their work and in the work of others can all be seen as variations on a single underlying theme: contrast. They argue that strong design seems to grow from elements in a state of contrast at all scales, from the overall shape of the building to the details of trim all working together. Jacobson and his colleagues conclude that good design in these terms is the production of harmony through the orchestration of strong contrasts.

Under the theory of contrast, these architects argue that a “good house” has three major characteristics. Thinking back over all “the wonderful buildings” they have encountered, they observe that good houses are full of contrasts. Second, opposing contrasts are linked to each other by a transition element or joint. Third, linked contrasts occur at every scale of the building, from the site plan down to the details and trim. Discussing the significance of linked contrast for our sense of a good house, Jacobson and his colleagues argue that contrasts are the very basis of architectural experience, for

the experience of a quality is sharpened and made tangible by its bipolar opposite. Contrast makes the building responsive to the ever-changing needs of the occupants. It offers opportunity for change and growth (ibid, p. 7). The Presence of contrast at all levels of scale ensures that the human need for continuity of orientation, actualizing sense of connection can be met.

Jacobson identifies six "bipolar opposites"— in and out, light and dark, order and mystery, up and down, exposed and tempered, something and nothing—phenomena that Harries calls natural symbols. Conceptually, both theories are similar except for the fact that Harries includes horizontal and vertical, center and periphery while not describing order and mystery, exposed and tempered, something and nothing.

As we have already seen in chapter 2, Harries argues that these common themes are aspects of natural symbols derived simply from "man's being in the world" that lead to a non-arbitrary architecture, whereas Jacobson simply presents the opposites as dimensions of contrast that create a good or successful design of a house. While Harries' argument clearly addresses the use of natural symbols to produce a non-arbitrary architecture, Jacobson presents the six dimensions of contrast as an approach to create a responsive dwelling that makes a good place to be in—supportive, vibrant and appealing to both the intellect and the senses. This statement corroborates the appeal both theories make for an architecture that seeks to fulfill man's fundamental need for dwelling, in short, his being at home on earth and beneath the sky. Therefore it is possible at this point to conclude that Harries' natural symbols and Jacobson's dimensions of contrast work to satisfy the same end.

The most important contribution made by Jacobson is the idea of linkage, which Harries doesn't discuss in his non-arbitrary architecture and theory of natural symbols. The meanings spoken by the bipolar opposites (natural symbols) laid out by both Harries and Jacobson are not experienced as separate themes at all. Rather, as argued by Harries, they are interwoven together to evoke a state of ambivalence among their respective relationships. The perceptible ambivalence is a result of a subtle linkage established between opposing contrasts by a transition element or joint. The idea of linkage secures the orchestration of strong contrasts to generate harmony. The idea of linkage plays a key role in diffusing or blurring the boundary between opposing contrasts, for instance between the boundary of inside and outside or light and dark. In short, one could say that the idea of linkage suggested by Jacobson establishes harmony, interweaves opposing contrasts, and elicits multiple meanings of the natural symbols.

Jacobson's discussion of the relationship between inside and outside relates to Thiis-Evensen's architectural archetypes. Jacobson argues that the primary task of architecture is to create in and out and to link the two by gentle transition. The increase of concavity, definition of corners and edges, an increase of opacity, decrease of the size and making the inside accessible through a series of layers are ways suggested to create inside in the midst of outside. Interlocking and interpenetration generate a strong weave of in and out by inter-connections of the outside space and building parts. The use of in-between places like porches, patios and arcades create smooth transitions. The other way of creating a link is by intermingling, which is putting exterior elements in the inside space and interior elements in the outside.

As Harries argues, there is an ambivalence of meaning in natural symbols. Jacobson as well substantiates this idea by suggesting that the link is not only between the bipolar opposing contrasts but also among the six contrasting dimensions, which are interconnected to constitute a system. The linked dimensions are like facets of a single entity. As figure 10. 1 illustrates, Jacobson demonstrates the interrelationship and shared expressions of the natural symbols as they are experienced.

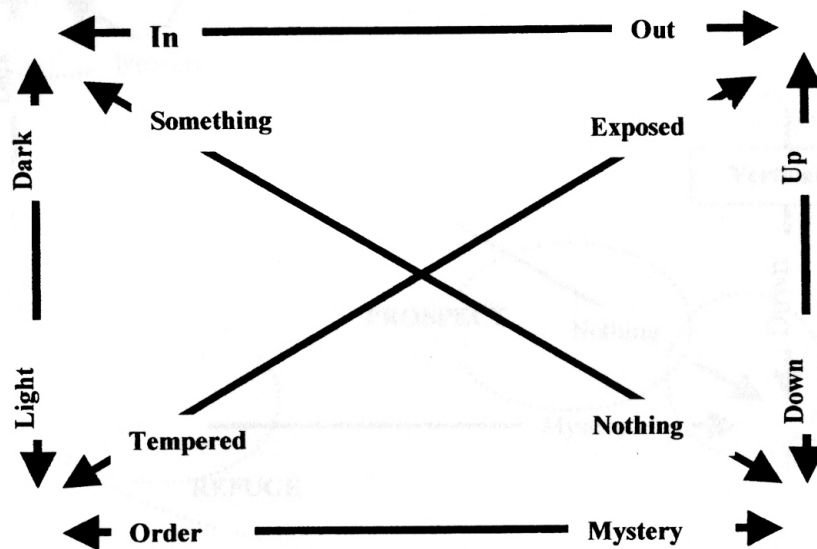


Figure 10. 1. The poles of each dimension are associated with each other. (Jacobson et al., 1990, p. 73)

As discussed above, there is a seeming connection between Harries' natural symbols, and Jacobson's six dimensions of contrast. As shown in figure 10.2, I present

the natural symbols discussed earlier and their related expressions in the design of Fallingwater and Villa Mairea that leads to a non-arbitrary architecture based on Jacobson's diagram of the linked contrasts.

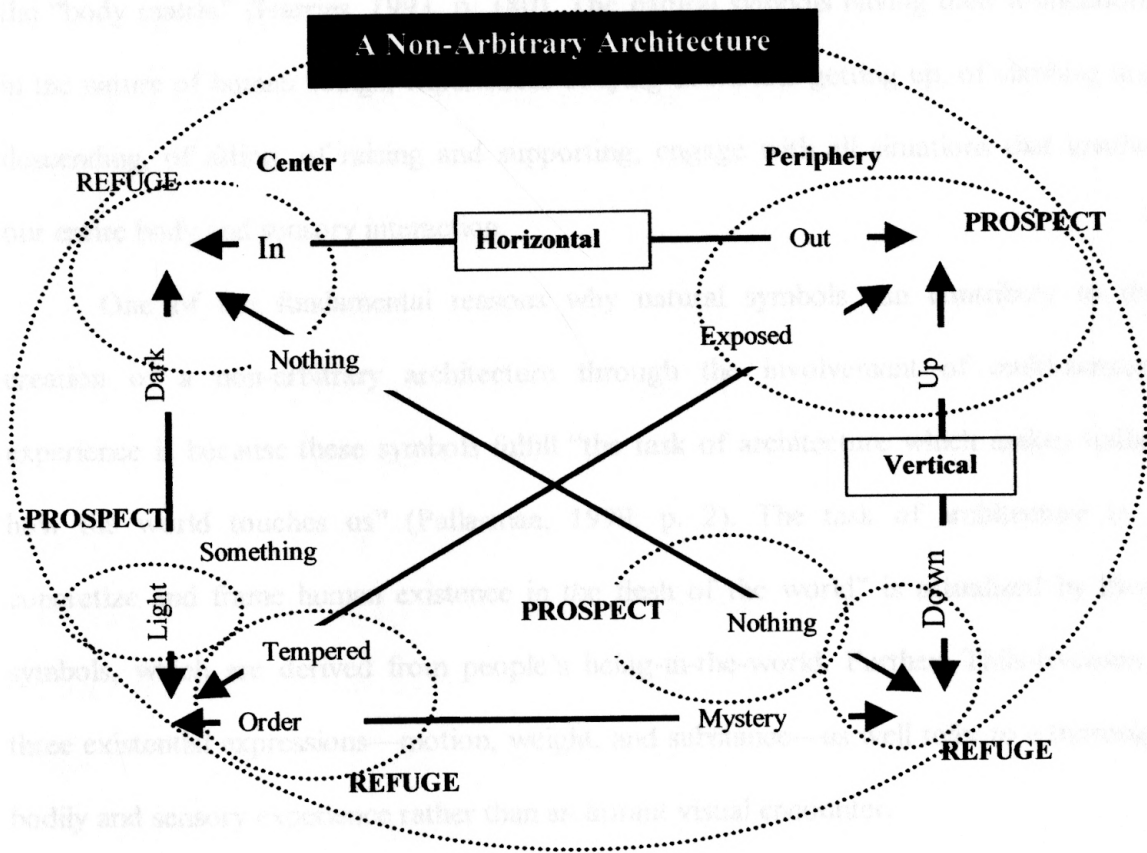


Figure 10.2. Diagram illustrating possible connections among Harries' theory of natural symbols, Appleton's prospect-refuge theory, and Jacobson's theory of contrast.

#### **d. Multi-Sensory Experience**

Multi-sensory experience in the creation of non-arbitrary architecture is crucial because it is inseparably related to natural symbols which support and reflect the human body as a measure of all things. The body gives us an understanding of the physical environment in terms of up and down, right and left, front and back—what Harries calls the “body matrix” (Harries, 1993, p. 180). The natural symbols having their foundations in the nature of human beings, experiences of lying down and getting up, of climbing and descending, of lifting, of raising and supporting, engage with all situations that involve our entire body and sensory interaction.

One of the fundamental reasons why natural symbols can contribute to the creation of a non-arbitrary architecture through the involvement of multi-sensory experience is because these symbols fulfill “the task of architecture which makes visible how the world touches us” (Pallasmaa, 1999, p. 2). The task of architecture to “concretize and frame human existence in the flesh of the world” is actualized by these symbols, which are derived from people’s being-in-the-world. Further, Thiis-Evensen’s three existential expressions—motion, weight, and substance—as well refer to a thorough bodily and sensory experience rather than an instant visual encounter.

Specifically, an architecture derived from nature and people’s being-in-the-world elicits a multi-sensory experience because it makes the shared bodily experiences its point of departure. We have seen that the two houses derive their architectural expressions from their natural settings. Fallingwater resonates with its perilous site, the depth of Bear Run, the motion, noise and wetness of the stream, the layers of rock ledges, the coolness and dampness of the forest. Similarly, Villa Mairea enhances the calmness

of its natural setting, it echoes the dampness and rhythm of the forest, and ultimately fuses with the landscape through an expression of rusticity and an image of the ruin. These features stimulate strong aural, olfactory, and tactile sensations. The smell and rusticity of the materials used in the two houses trigger our memory and engage us with the taste of time—past and present. Particularly, in Fallingwater, one cannot see Bear Run from the interior; however, one is constantly reminded of its powerful presence by the constant sound it makes. Here, one is connected to the outside, not visually but aurally.

Pallasmaa argues that “every significant experience of architecture is multi-sensory” (ibid., p. 2). We encounter and perceive our environment with all our senses. The eye, ear, nose, skin, tongue, skeleton and muscle measure qualities of matter, space and scale. Although all these constitute our senses, our sensory interaction occurs simultaneously during actual experiences. Describing the simultaneity of experience, Pallasmaa writes: “my perception is not a sum of visual, tactile and audible givens: I perceive in a total way with my whole being: I grasp a unique structure of the thing, a unique way of being, which speaks to all my senses at once” (ibid.).

Pallasmaa (1998) writes that “modern consciousness and sensory balance have gradually developed towards an unrivalled dominance of the sense of vision” (ibid., p. 296). He comments that, because of the dominance of the eye over the other sensory realms, architecture has been reduced to “an instant visual image.” Pallasmaa argues that the lack of “opacity and depth, weight and authority, mystery and shadow” and the ever-growing emphasis given uniformity has caused a “sensory detachment” that ignores the



other sensory realms. Pallasmaa calls the kind of architecture reduced to an instant image as “retinal architecture” (ibid.).

In contrast to our culture of control and speed that favors the architecture of the eye with its instantaneous imagery and distant impact (Pallasmaa, 1998, p. 3), Fallingwater and Villa Mairea constitute a haptic architecture that promotes slowness and intimacy, appreciated and comprehended gradually as images of the body and the skin (ibid.). Pallasmaa further writes that “the architecture of the eye detaches and controls whereas haptic architecture engages and unites. Tactile sensibility replaces distancing visual imagery by enhancing materiality and intimacy” (ibid.).

As we have seen from the interpretation of the two houses, it is hardly possible to visually experience the two houses thoroughly, particularly Fallingwater, yet, their powerful architectural expression is more evident to our senses. The buildings are so interwoven with the peculiarities of their sites that one needs to encounter them as he or she does nature itself. Fallingwater and Villa Mairea, in contrast to the retinal architecture that favors architecture of the eye, emerge as good examples of haptic architecture with shapes, materiality and textures that relate to our entire bodily and sensory existence.

## Achieving a non-arbitrary Architecture

To recapitulate, what does a non-arbitrary architecture speaking with natural symbols look like? Are there any modern buildings that might be understood as a non-arbitrary architecture? Is there any way to bridge the gap between meaning and material expression and thereby achieve a non-arbitrary architecture?

The four major underlying design principles just discussed suggest that Fallingwater and Villa Mairea were allowed to arise spontaneously out of the requirements and concerns of their users and particular sites rather than being made arbitrarily (Seamon, 1993, p. 3). The reference made to *nature as a source, means, and end* suggests the integration of the houses with their sites where the inhabitants are able to live close to their natural environment. Nature offers a reservoir of exemplary architectural forms and relationships which enables users to cultivate a sense of proportion in our buildings (Lin, 1991, p. 14). Further, materials that are allowed to be themselves and grow from their sites fuse buildings with nature. *Linked contrasts* enable us to experience the natural symbols as a unified whole, while *prospect and refuge* indicates our innate predilection for habitation that fulfils our desire to see without being seen. Finally, an architectural expression that involves the above design approaches generates a *multi-sensory experience* that integrates the senses to create a haptic architecture.

At this point, it is possible to conclude that Wright's Fallingwater and Aalto's Villa Mairea, though situated at different geographical locations, and belonging to users of differing cultural backgrounds, are two examples of a non-arbitrary architecture that responds to the particular natural and cultural setting of respective places. In short, these

two houses set a good example for current architectural education by demonstrating an architecture that interprets nature and people's existence in the world.

Harries claims that both Modernist and Postmodernist architectural styles are arbitrary, their major problem being a greater freedom from the constraints of nature and culture. In other words, the architectural expression of these two styles could readily be other than what they formally and stylistically represent (Seamon, 1993, p. 3). Harries suggests that the return to what is essential might solve the problem of arbitrariness (Harries, p. 44). In this instance, as the findings of this thesis demonstrate, the reference that Wright and Aalto make to the essence of human life and landscape in the designs of the two houses clearly suggests a non-arbitrary architecture.

At this point, it is possible to say that this thesis has demonstrated how the use of natural symbols can help to create a non-arbitrary architecture. As Harries himself argued, however, natural symbols can never tell us how to build but instead, help us to think about how our buildings can be made more thoughtfully (Harries, 1991, p. 11). Nevertheless, to create a non-arbitrary architecture grounded on the language of architecture that bases itself on our being-in-the-world primarily demands a deep understanding of the lifeworld of the inhabitants and an acquired knowledge of nature. As Wright and Aalto argued in their thinking and demonstrated in the design of Fallingwater and Villa Mairea respectively, such a design approach can create an architecture that enables inhabitants to find their place in the world. In this way, nature and inhabitants relate to each other, reinforce each other, and ultimately live together.

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APPENDIX

THE NATURAL SYMBOLS AND THE TWO HOUSES

NATURAL SYMBOLS

INSIDE  
AND  
OUTSIDE

FALLINGWATER

VILLA MAIREA

a. In-betweenness

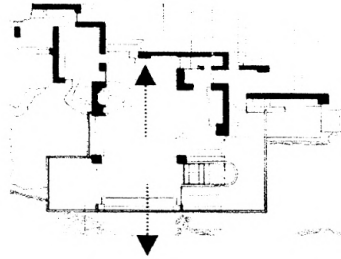


Figure 4.1. An Increased sense of insidiness in Fallingwater is created by the opacity of the masonry walls at the north side while an increased feeling of outsideness is created by the transparency of glass windows on the south, southwest and southeast side. (Kaufmann, 1986,p. 73).

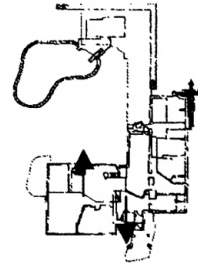


Figure 4.2. An Increased sense of insidiness in Mairea is created by the opacity of the solid walls at the main entrance and the fireplace while an increased feeling of outsideness is created by the transparency of the continuous glass windows on the south, south west, north, and north west windows. (Reproduced from Pallasmaa, 1998, p. 146).

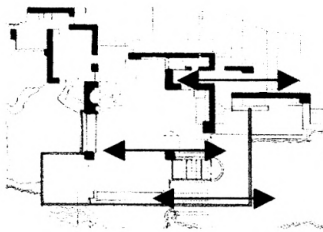


Figure 4.3. The deep entryway and balconies illustrate in-between places in Fallingwater. (Kaufmann, 1986, p. 73).

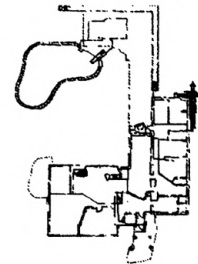


Figure 4.4. The entrance canopy, the covered terrace, terrace beneath the studio illustrate in-between places in Villa Mairea. (Reproduced from Pallasmaa, 1998, p. 146).

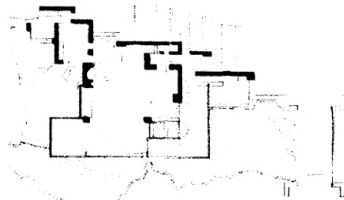


Figure 4.5. Fallingwater's circuitous path that leads from the outside to the inside. (Kaufmann, 1986,p. 73).

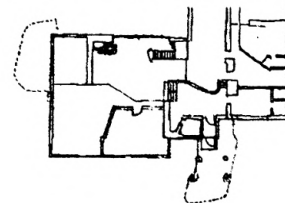


Figure 4.6. Villa Mairea's circuitous path that leads from the outside to the inside. (Reproduced from Pallasmaa, 1998, p. 146).

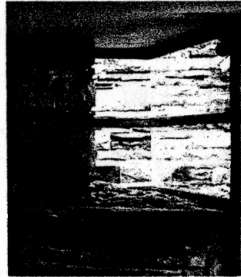


Figure 4.7. Fallingwater. Absence of wall and frame at corners immensely decreases the house's sense of enclosure. (Kaufmann, 1986, p. 156).

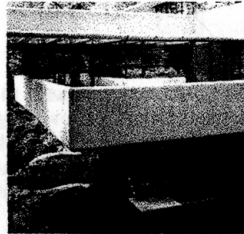


Figure 4.7. Fallingwater's windows link the inside and outside in horizontal axis, while the living room stair to Bear Run links the inside with the outside in a vertical axis. (Kaufmann, 1986, p. 100).

b. Interpenetration

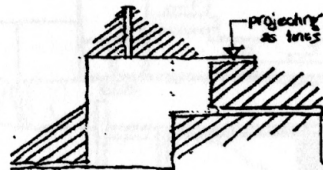


Figure 4.8. Interpenetration. Parts of a building that stretch out to landscape and project the inside to the outside.

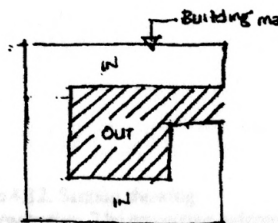


Figure 4.9. Interpenetration. The outside space cradled by the building mass becomes a link between inside and outside. Here outside stands in the field of inside.



FALLINGWATER

VILLA MAIREA

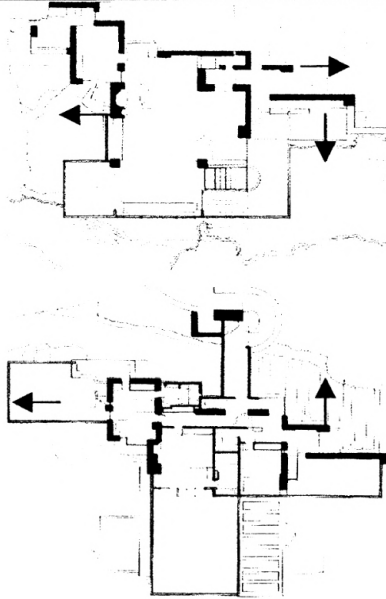


Figure 4.10. Interpenetration. Fallingwater's projecting trellis over the driveway, west terrace, plunge pool, boulder at fireplace, and horizontal entrance wall all tie the house to the natural landscape. (Kaufmann, 1986, p. 73, 135).

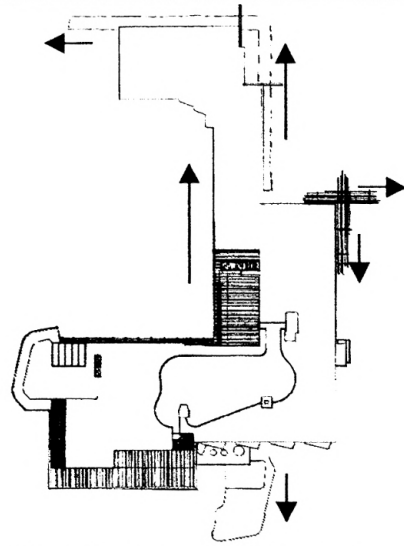


Figure 4.11 Interpenetration. The entrance canopy, the rustic stonewall, the covered terrace turf roof, and the pergolas leading to the forest all work to tie Villa Mairea with the natural landscape. (Pallasmaa, 1998, p. 65, 148).

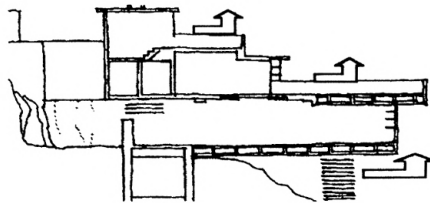


Figure 4.12. Section showing interpenetration. The projecting balconies in Fallingwater cradle the outside space and generate another spatial link between inside and outside. (Reproduced from Kaufmann, 1986, p. 73, 96).

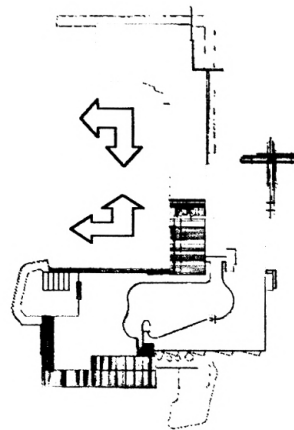


Figure 4.13. Interpenetration. Mairea's U-Shape floor plan cradles the outside courtyard space. The inside holds the outside. (Pallasmaa, 1998, p. 148).



Figure 4.14 The boulder and fireplace as a phenomenon of the ground and presence of the outside in the inside. (Kaufmann, 1986,p. 8McM7).

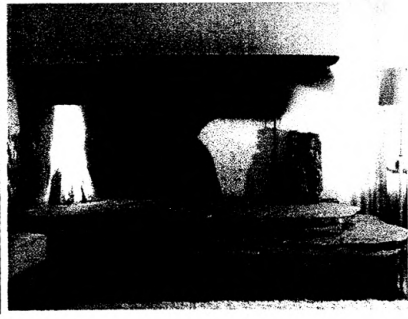


Figure 4.15 Villa Maira's roughly cut stone fireplace as an element of the outside in the inside. (Pallasmaa, 1998, p. 79).

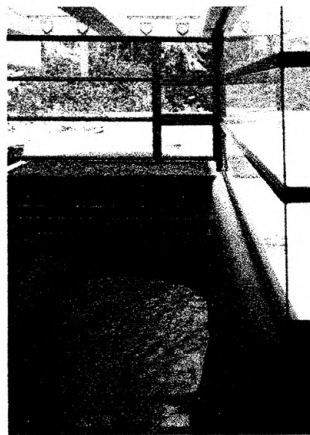


Figure 4.16. Metaphorical representation of the wetness of the stream in the inside. The waxed flagstone floor has a striking resemblance to the surface of the water as it is seen through the stair that runs down to Bear Run. (McCarter, 1994,p. 41).



Figure 4.17 The arrangement of Villa Maira's columns as singles, pairs and triples, and their different treatment confuses the conventional structural grid system. The columns, along with the non-structural columns and wooden poles, echo in Maira's living room the rhythm of the outside forest. (Pallasmaa, 1998, p. 107).

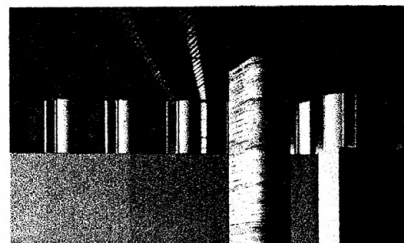


Figure 4.18 The undulating glazed units above the library book shelves simulate the forest light and dissolve the partition into a forest screen. (Pallasmaa, 1998, p. 113).



Figure 4.19 The plants, roughly dressed stone flooring, use of natural cladding materials for the wall and ceiling, the transparency of the windows, all give the flower room features unique to an outside space. The whole appearance of the room evokes images of traditional Japanese architecture. (Pallasmaa, 1998, p. 262).

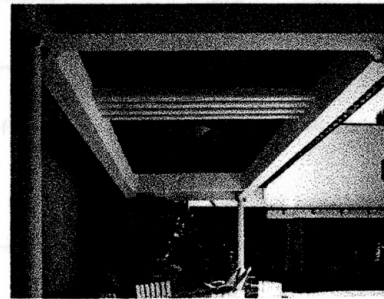


Figure 4.20 The presence of the rustic fireplace in the covered terrace: its furnishing, the clean and tidy finishing for the columns and ceiling elevates the terrace to an outdoor room furnish with a sense of warmth, comfort and safety typical of an inside space. (Pallasmaa, 1998, p. 101).

**LIGHT  
AND  
DARK**

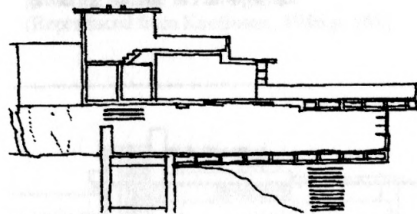


Figure 5.1 In Fallingwater, the relationship of dark inside and light outside gives the opportunity to see without being seen. (Section reproduced from Kaufmann, 1986, p. 73).

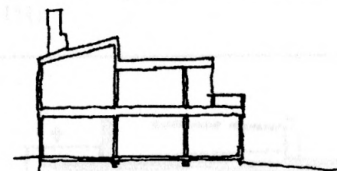


Figure 5.2 In Villa Mairea, the relationship of dark inside and light outside gives the opportunity to see without being seen. (Section reproduced from Pallasmaa, 1998, p. 150).

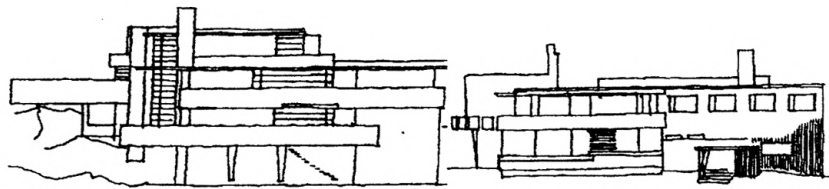


Figure 5.3 Light and dark in terms of something and nothing in Fallingwater.

Figure 5.4 Light and dark in terms of something and nothing in Villa Mairea.

HORIZONTAL  
AND  
VERTICAL

FALLINGWATER

VILLA MAIREA

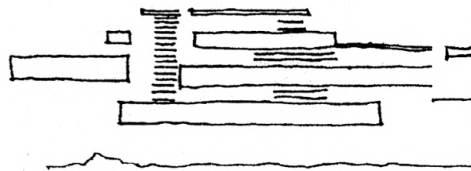


Figure 5.5. Horizontal elements in Fallingwater.

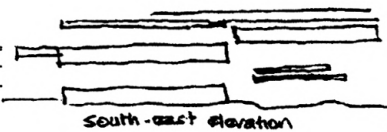


Figure 5.6 Horizontal elements in Villa Mairea.

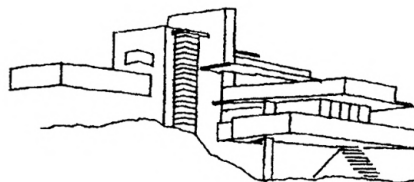


Figure 5.7. The vertical fireplace wall as a gathering middle in Fallingwater. (Reproduced from Kaufmann, 1986, p. 169).

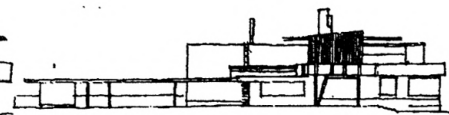


Figure 5.8. The studio wall treated with vertical slats as a gathering element in Villa Mairea. (Elevation reproduced from Pallasmaa, 1998, p. 151).

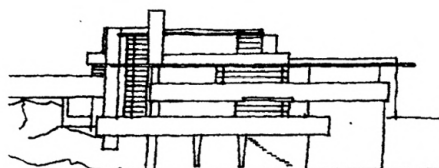


Figure 5.10. Balance between verticals and horizontals in Fallingwater. (Reproduced from McCarter, 1994, p. 50-51).

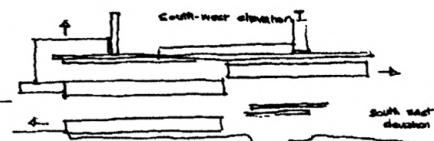


Figure 5.9 Dominance of horizontality over verticality in Villa Mairea.



Figure 5.11. The horizontal course of stone masonry as a continuation of the rock ledges of Bear Run

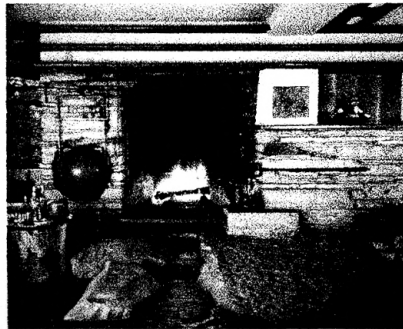


Figure 5.12. In Fallingwater, the interior detailing of horizontal decorations on the walls and the stone masonry echo the horizontal expression of the exterior. (Kaufmann, 1986, p. 8).

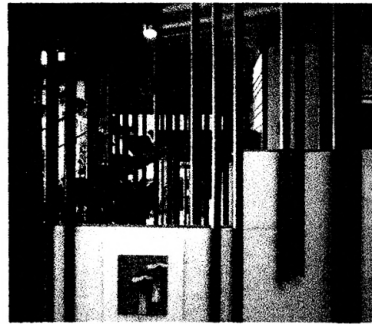


Figure 5.13. In Villa Mairea, verticality is a dominant theme in the interior space, while horizontality is the major theme to the exterior. The spontaneous vertical rhythm of columns in the living area and non-structural, vertical poles on the staircase and the entrance hall repeat the vertical forest rhythm. (Pallasmaa, 1998, p. 83)