

TOWARD A PHENOMENOLOGY OF WOOD:
INTERPRETING THE YOSHIMURA HOUSE,
A JAPANESE VERNACULAR DWELLING,
THROUGH THIIS-EVENSEN'S ARCHITECTURAL ARCHETYPES

by

MURALI RAMASWAMI
B.Arch., Madras University,
Madras, India, 1984

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Major Advisor

Bernd Foerster
Bernd Foerster

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CHAPTER I:

INTRODUCTION

Our age, marked by the permeation of technology, is often unquestioningly regarded to be one that is unique in the history of humankind and thought to be separate from the rest of human history. In our postmodern age, the nature of human experience of time and space has been extensively altered by technology in the sense that the number of choices as to how ones lives life is practically infinite. Means of transportation and communication, has wrought changes to, among ever so many other aspects of life, the nature of human-environment relationship. An inquiry of the very fundamentals of this dynamic relationship has become necessary. The many layers of technological interventions shroud and make inaccessible even the simplest essential structures of human experience of place.

Peoples' attachment to places and the recognition of their spirit is historical. What has been innately understood and natural for centuries now evades understanding and is brought into the forefront as subject for investigation as many environments have been rendered unfamiliar and difficult to manage. In the context of increased transience and reduced attachment to places, "sense of place" has become a difficult concept to grasp, if it does not seem abstract and unreal. Such a situation is fortunate in as much as it makes it necessary to reexamine what is, or has been traditionally taken for granted (Relph 1976). The definition of place from a humanistic perspective spans the purely physical place on one extreme to the abstract mental grasp of it on the other. In this thesis the interest is on physical place and architecture as they embody and sustain a sense of place. Within this general theme, a particular focus is on material that is a prerequisite to architecture.

FOCUS OF THE THESIS

The broader interest of this thesis is to establish the reality of the natural meaning of materials that build architecture and their import in making a place. The basic premise of this

thesis is that materials, in a parallel way to forms, evoke deep and persisting meanings which transcend both cultural and personal associations. It is the correspondence of the essence of form and material that yields a directness and an irresistible appeal to vernacular buildings. It is this which imparts a convincing voice to these structures of the past regardless of how obsolete they are presently in any functional sense.

The specific interest of this thesis is to seek and grasp the essential nature of wood as a material that builds places. A qualitative study of wood can discuss many aspects of the material as it passes through different stages of shaping, finishing, and combining to eventually construct architecture. In seeking to interpret the nature of wood, one can, on the one end, go back to the tree it originates from and, on the other end to the experience of the built environment of wooden architecture.

Specifically, this thesis will explore active role of wood in determining the formal expression of one Japanese vernacular dwelling and, how wood makes the inside/outside relationship of this house distinct. From this, a general question is raised with regard to the nature of wood and the persisting experiential and expressive properties of wooden buildings. In this interpretive process, which is a prefatory attempt to corroborate observations of wood made through interpreting one the dwelling, other Japanese examples act as brief references.

THE METHOD

The interpretive process of the qualitative exploration of wood is two-fold. First, is the form interpretation of one exemplary Japanese vernacular house with the conceptual framework of Thiis-Evensen's Archetypes in Architecture (1987). The method of the interpretive study of wood involves careful looking and explicating second-hand texts of photographs and drawings of the house in a phenomenological fashion. This calls for "imaginative transposal," the act of projecting oneself into an imagined space or experience. In the course of such an exercise, the author's direct "lived-in" experiences of wooden buildings

act as an important referential source.

There are several reasons for the choice of wood as a focus of this study. First, is the author's own deep affinity and fascination for the material which derives from belonging to a non-wooden culture, India. The second has to do with the common recognition of wood as a natural and living material. The meaning and the nature of such a material appears more directly accessible. Finally, the paradoxical strength of the material to build sustaining monuments in spite of its natural fragility, was an alluring aspect.

This thesis seeks to address one area within architectural theory. This is attempted by drawing upon place theories that are phenomenologically oriented and form the philosophic foundation for this study. The relevance of humanistic explications of place to architecture is that they seek to understand intangible yet essential aspects of the human environment. Such attention promises a deliverance from the characteristic abstraction of much modern architecture and places. An argument is made that one reason for this status quo arises from disregard of materiality. Thus, the first part of the thesis attempts at defining architecture as place and the activity of building as place making, and in this sense the terms—architecture and place—often substitute for each other. Materiality, the explicit focus of the study is attempted to be related as an existential component of place.

OVERVIEW OF CHAPTERS

The organization of this thesis reflects and traces the way the study itself evolved. The first part, comprising chapters two and three, presents a review of literature and conceptual and methodological view points related to this study. Chapter two stresses the primacy of the material substance of architecture as an equal counterpart of form that imparts architectural character. Architectural character is also related to the notion of place and its essence. This chapter also reviews the tendencies of recent architectural thinking in regard to these issues. The overall aim of this chapter is to discuss the need for, and the pertinence of qualitatively

oriented studies of architectural materials. The understanding of materials from this perspective is seen as one way to enhance the experiential depth of built environments, not in order to merely gratify the senses but to initiate a persisting interaction between people and their places.

Chapter three first addresses the value of phenomenology and some of its methods to environmental design, followed by a definition of scope and aims of the qualitative study of wood. Here, the study context—Japanese wooden architecture—and the vernacular dwelling to be interpreted are introduced and the rationales behind the choice of these are discussed. Next, the method of explicating the house is described and finally, the chapter is concluded by presenting a summary of the broad ideas of Thiis-Evensen's Archetypes in Architecture, which offers the conceptual frame work for the interpretation of the house. An attempt is made to establish similarities between Thiis-Evensen's ideas and methods and those of other important theorists and architects.

The second part—chapters four through six—aims at a phenomenology of wood by careful descriptions and interpretations of vicarious experiences gained through looking at photographs and drawings of one Japanese vernacular dwelling. The objective herein is to explore special qualities of wood through one representative example of the rich wooden architecture of Japan as a real-world field of reference.

The interpretations, or the "readings" of the texts, are structured by the conceptual framework of Thiis-Evensen's phenomenology of form and his three archetypes—the floor, wall and roof. Chapter four summarizes the three major sections of Thiis-Evensen's Archetypes in Architecture. Chapter five comprises of, first, a physical description of the Yoshimura house—the example to be interpreted—followed by individual interpretations of the floor, walls, and roof of the house. In chapter six, an attempt is made to understand the general expressions of the wooden floor, wall, and roof, as suggested by the interpretations of Yoshimura's three elements and other significant examples of Japanese architecture as well.

In the final chapter, an attempt is made to recognize the essential aspects of wood that persists in all the individual interpretations of the three elements of wood. The chapter is concluded by outlining directions for further research and the scope and the limitations of the present study.

CHAPTER II:

ARCHITECTURE, MATERIALITY AND SENSE OF PLACE

ARCHITECTURE AS "PLACE"

Architecture, accommodative of myriad, complex and even contradictory definitions, is commonly seen as "place-making"; places appropriate, responsive, stimulating and dignified for human existence. Interest in place is universal (Tuan 1977). Across time, religion and cultures, one can observe interest in places revealed by the care with which they are built and strengthened. If the purpose of architecture is to build places, the notion "place" has to be probed for understanding. What makes a place? In the seemingly endless stretch of desert dunes, a rocky outcrop marks a location and suggests a place. An empty lot in a small town transforms and comes alive as an important place one day a week, as people gather to trade their cattle using very few and transitory objects to create paths and centers. The notion "place" can also be a mental concept that has very little to do with the physical attributes of a place. For instance, even in the best physical settings, one could yet feel "placeless" or "displaced" due to not belonging to a linguistic or social group.

"Place," therefore has to be recognized as a complex phenomenon that has experiential quality, and therefore exceeds the mere sum of its component elements such as the physical location, natural elements, or people. The significance of a place need not rest solely upon its physical attributes. Although these could yield a strong identity to the place, users identify with a place through developing and strengthening a meaningful relationship with it. Alan Gussow's description of place as "a location endowed with feeling" helps us to understand the importance of the human counterpart in place making. David Seamon develops the notion of "place ballet" to describe "the regularity of place founded in habit, routine and supportive environment" (Seamon and Nordin 1980, 35). He offers a Swedish market place as an example of a place that "individual participants create with its own tempo of activity, rest, bustle and

calm" (ibid.). Even a small change in the market [which to start with is made of very few, temporal-physical objects] disturbs the regular visitor/buyer.

The study also reveals how a "larger place" and meaningful relationships are created and strengthened by the regularity of the place [its relative permanence and reliability] and its elements of unexpectedness [small changes]. Activities normally deemed mundane, the study illustrates, are important to everyday lives of people and a supportive physical environment becomes important. These activities are meaningful and are not merely "shopping" or "getting some place." The activities themselves are as important as their purpose.

Place as a phenomenon evades strict and singular definitions. Yet places, in a holistic sense, are irreducibly linked to human existence. Any event or experience happens some place. It is Ruskin's remark, that helps us to understand architecture as a constituent of place, and grasp its meaning in the same sense as that of place: "We may live without her [architecture], and worship without her, but we cannot remember without her". An unstructured understanding of places [drawn from one's personal and intimate experiences] and a formal understanding [abstractions and representations] are both necessary to the designer of the environment. The designer ought to see his or her attempt as an integral part of what forms a place and not as something that, in an absolute sense, "creates a place." "Identification with a place" and "sense of place" are notions of everyday experiences of place that are taken for granted. To gain clarity of these notions one needs to draw upon personal experiences of places. Such understanding is important to builders of place to facilitate these qualities. For, buildings can be designed. But architecture [if understood to be "place making"] needs to be aided; facilitated.

DISREGARD OF MATERIALITY, AND FORMALISM

In regard to materiality and place, Norberg-Schulz writes, "The character is determined by the material and formal constitution of the place. We must therefore ask: how is the ground on which we walk, how is the sky above our heads, or in general; how are the boundaries which define the place. How a boundary is depends upon its formal articulation, which is again related to the way it is 'built.' Looking at a building from this point of view, we have to consider how it rests on the ground and how it rises towards the sky" (Norberg-Schulz 1980, 14). In aiming to impart a "sense of place" to architecture, which should be a focal interest of a designer, the experiential quality of architecture assumes great importance. Yi-Fu Tuan describes experience as a cover-all term for the various modes through which a person knows the world (Tuan 1977). Experiential quality of architecture then would stress not merely the way things look, but also on how things feel and what they mean.

Let us consider an imaginary construct: two enclosures wherein, our attention is on the walls. Let us posit that the enclosures are identical in all their physical attributes except the materials that make them. The first one is a "massive-wall," as is any masonry and the second, a "skeletal," as a stud wall of wood. Let us also assume the skeleton and skin wall is made to mimic the massive one to satisfy our first condition. Fenestration, if any, are identical too. A cursory judgement might suggest that no experiential differences are possible, but a little careful reflection would disclose important differences. In actual occupation of these two superficially identical spaces, even within a short time, subtle differences would start to show. One is bound to make actual physical contact with either walls at some point and thus experience the 'hollowness' of one and the 'solidity' of the other.

Although this is only empirical information learnt about the two walls, they nevertheless convey the particularity of the relationship with the outside—a specific sense of 'distance to the outside' (the same distance within the massive-walled space is experientially 'deeper' than within the skeletal-walled space). However buried and sub-conscious these

experiential understandings may be, they still are real and reveal themselves in everyday expressions and descriptions and in the ways in which qualitatively different spaces are occupied. For instance, typically, spaces of massive walls encourage life along the edge, close to the outside, since the 'inside' they help create are 'thick' and 'contained.' Traditionally places for sitting, and other furniture 'move' close to the walls, the periphery of the interior space, when the space is delimited by thick walls.

The primacy of material is hard to deny and is even rooted in everyday language. Thus it is a building of brick or stone or wood. The building belongs to the material, just as the material belongs to the building. Architectural character, not a factor of stylistic dispositions but a quality that humans identify with, according to Norberg-Schulz, is woven into the materiality of the building: "In general the concretization of existential dimension depends on how things are made, that is, it depends on form and technology" (Norberg-Schulz 1980, 6). Spatial organization [topological structure] is not entirely autonomous, that is, one could not repeat a particular form in different materials and yet retain a particular character. Further, one could not achieve an intended character by mere usage of materials disregarding the processes that are necessary to bring them together in assemblage.

The results of such disregard are pastiches or 'treatment of skins' that characterizes one of the two major trends that can be identified in recent architectural thinking. In contrast to this tendency that makes historic allusions in the avowed hope of resurrecting symbolism, is a trend that is self-referential and negates the materiality of architecture even more thoroughly. Edwin Chan represents this 'immaterial' view of architecture: "The textual structure of architecture is not color or materiality or texture the structure of architecture is lines and planes... It is better to understand Chicago, for instance, by looking at a plan than by walking the streets" (Hacker 1986, 28). Or, one can conclude more directly, a place can be fully known only through the abstract modes of representations. In other words ,it seems, form is all. The complete negation of knowing a place through direct personal experience supports

design efforts of the kind that proceed from the remote with only abstract, quantified and necessarily reduced information. The total negation of material leads to interestingly engaging formal plays, but also leads to characteristic abstraction and alienation as places.

MATERIALS: THE NEED FOR REFLEXIVE INQUIRIES

Contemporary techniques of building seem to afford a great deal of eclectic intentions. A steel or concrete skeleton can be fleshed out in stone, glass, brick or plastic. There lies, at least with the industrialized nations, which incidentally are the influential centers of dominant architectural theories, an unprecedented level of technical ability to manipulate architecture as a willful medium of 'representation.' Images from the 'past' or 'future' can be selected for many reasons, often to aid polemical discourses, and the required assembly of parts to realize the design intent becomes building science information that students and professionals learn to use.

The century old ideal of William Morris that "construction and ornamentation interpenetrate," is yet to be achieved except in rare works (Cole 1934, 480). Systems of building need to be challenged, their validity questioned, but within the context of a reflective inquiry of the nature of materials and its role in determining overall architectural character. Inventiveness that grows out of such attempt would have far-reaching effect upon the quality of building and may increase the participation and identification of those who actually build our buildings.

Materials and systems of construction, since they are inherent in the character of architecture, need to be studied. By and large, however, materials and processes have been subjects of technologically oriented studies. Such studies determine the performance abilities of materials and help us to design enduring buildings. Understanding gained from technocratic perspectives yield creative solutions to that include economy and speed of construction. The "problem solving" methods of building construction at the same time also afford personal

intentions and expressions of the designers that are becoming increasingly eclectic and arbitrary. Aesthetic studies of materials thus become necessary.

However, aesthetically oriented studies, if they do not seek to understand or explain the nature of material or the process of its assemblage, could be exercises of mere 'taste refinement,' strengthening one's personal preferences of material and textural imagery. In the current context of multiple influences of thought and abundance of images, such an approach is particularly undesirable. For in contemporary architecture it seems to lead to a building of images and not of architectural character that is in harmony with the place. In seeking an architectural character, one desires more than photogenic buildings: architecture that not only lends itself to making pleasing pictures but embodies a sense of place.

Relegation of material to a subservient role, and overemphasis of form can be readily seen to have accompanied the industrial revolution, and then to have been fostered by the modernists. Yet this is only true when the term "modernism" is used in a sweeping way to embrace all of "international style," and even more, all building activity motivated only by economic profit. Many modernists spoke of the nature of building materials intimately and with conviction. Historically we see instances of great works that evolved from interpretive understanding of materials and processes. Kahn's 'conversation' with brick perhaps represents animistic tendencies to the all too practical, but it is exactly this which breathes life into his architecture.

"Builder," for him summons more respect than "designer." "I am actually more of a builder than I am a designer. I know it. In terms of material I can make a building in which the materials sing out. It looks like a stupid old thing, but then the material becomes something unusual because of the builder's attitude. If you think of a designer in the true sense, that's exactly what I am. But a designer in the typical sense means nothing but somebody who decides on the color of the marble in the lobby of a hotel. It's all window dressing the exterior...I say I am a builder. I feel terribly proud of that" (Wurman 1986, 242).

column affect the implied weight of the column and its load bearing expression. The fluting on classical columns, which Thiis-Evensen treats in great detail, can appear as penetrations into the very substance of the column's material or appear as merely decorations on the surface of the column that accentuates its plastic character (*ibid.*, fig. 251, 199; fig. 259-260, 204; 204). It is the depth and relative dimensions of the fluting that make it seem one way or another.

Next, Thiis-Evensen explicates the expression of support that arises out of the column's capital and base which he calls the head and the foot. He interprets the three classical orders--Doric, Ionic and Corinthian--and explains how each create a specific visual expression of support. He concludes that the archaic Doric column "is a visualization of the collision of opposing forces rather than the fusion of them.." (*ibid.*, 207). The Ionic column, on the other hand "...conveys soft compliancy...and settles obediently but resiliently.." (*ibid.*, 208). Unlike both these that mediate and express opposing forces, the Corinthian column expresses an upward thrust alone (*ibid.*, fig. 262, 206; 209).

After discussing the column's expression of support, Thiis-Evensen explores its potentials to impel or repel movements. Although the relative height and the relative thickness of the column either halt or encourage movement, it is the cross-section and the outer surfaces that are more powerful determinants of motion. The round and the square are the archetypal shapes of column which can be combined and varied to result in complex experiences. Whereas the round column permits free flow of spaces around itself the square column restricts free movement and directs it (*ibid.*, fig. 248, 199). In contrast to the inwardly oriented self contained circular column the square column points away from its own center and threatens to "fall away" (*ibid.*, 209).

Having discussed the column in detail, Thiis-Evensen briefly turns to the frame as an entity to point out that in order that the frame appears secure, the column and the beam and the frame's opening must all be in accord (*ibid.*, 223). Unless the strength relationship between the elements of the frame in the particular context of that frame's opening are well balanced a

the crucial need for experientially oriented inquiries of building materials and systems.

A RESPONSE TO THE CRITIQUE OF MATERIALITY

The primacy of materiality can be challenged by at least two generalized positions. The first is a radical position manifest in the currently popular tendencies of deconstruction. With underlying disbelief in the concepts of closure, center or place and furthermore, in the impertinence of these notions in the contemporary state of pluralism, it is only natural for this position to disregard any discussion of the semantics of architectural materials. Edwin Chan's remarks on the "immateriality" of architecture exemplifies this stance (Hacker 1986, 28)

It is, however, difficult to believe that in the new rational world of pervasive technology, human beings no longer have a need for centers of existence, closures and meaningful places. In fact, some avow that "physical place can no longer provide any psychological security" (Eisenman in a film on deconstruction). Yet there is ample empirical evidence that show a human desire to create places and inhabit them persists, and that claims as these seem only to be abstract constructs of uninvolved academicism, or the elitism of the restless avant-garde. For empirical evidence one needs to open one's eyes to the numerous 'insignificant' human settlements around the world. Be they rural or urban, in the developed or the developing countries, they embody a common desire--that of the people to sustain places they hold affection for, and to qualitatively improve their own places. And these with the same values of building meaningful centers, and not with any acquired intention to visibly, represent the plurality of modern existence.

These values are important not because they are "traditional," but because they are persistent, and therefore say something essential about the human-environment relationships. Architecture as a representation of an ideal is quite different from architecture as a visible representation of the status-quo. Indeed architecture has always been reflective of society, but this is a natural unconscious function; not the basis of her evolution. But as a medium of

conscious representation, architecture gets reduced to a mere medium of cultural commentary.

The second, not so radical critique would not attempt to displace the formal spatial concepts of 'closure,' or 'center,' nor claim that the sense of emotional support yielded by these spatial concepts to be illusory, but would challenge the immutability or inseparability of a particular material in its contribution towards architectural space, let alone 'place.' Such a disposition, resulting either from a leaning towards technology or artistic expressiveness, views itself to be 'progressive' and a better agent of change. It would only regard any phenomenological 'return to things' as romantic and regressive.

Materiality assumes no importance if the objective is purely an exploration of spatial definitions and allusions. Such a 'pure space' untainted by human involvement can exist only as a mental construct aiding formal and polemical discourses. It is as impossible as a 'purely architectural experience' is. In other words, architectural experience is always distinct from one of countering an autonomous object of art, not because of its functional 'impurification,' but because it always will refer to the existential dimension of human life. Experientially, architecture is not evaluated on the basis of historic, nor aesthetic knowledge. This holds good even for informed architects, since their immediate reactions to the built environment is primarily qualitative, pre-reflexive and most of all, pre-professional.

WORKMANSHIP: A CONTEMPORANEOUS CONSIDERATION

Building is largely a process of assembling materials. The primitive buildings brought together readily available materials, their original form recognizable in the built form. Throughout history, the means to transform, shape materials, synthesize new ones and assemble them in newer ways have increased. Scientific knowledge of material behavior accompanied by mechanistic means to assemble them have so altered the production of architecture that the effects upon its character are far reaching. The notions of "workmanship" and "craftsmanship" have become complex as the question--what is handmade?--has become

very difficult to answer. The hand-held electric saw can be still argued to be a natural extension of human hand, and its product can be thought to embody no lesser craftsmanship.

Such arguments, however, seem polemical. Viewed only as decoration of buildings, craftsmanship becomes a formalistic issue that can be solved in many ways. Instead craftsmanship needs to be seen as something that is integral to the character of a place which draws from the creative participation of the builders involved. Such a perception makes the need for craft in architecture meaningful. In the design process, adapting this belief translates into a challenge of making room for the actual builders to creatively contribute in building the place. Also, it will help shake the complacency of the craftsman and create new standards.

Workmanship or craftsmanship refer to the way buildings are made. Qualitatively they have connotations of artistry and skill. Apart from these, at least in vernacular traditions, it represents care and identity which implies participation. The consideration of workers' enjoyment, a serious concern of Ruskin, however radical it may seem in the light of economy of industrial production, is still an important aspect to be considered because people identify with places by imparting something to it—even if it is the smallest of changes.

CHAPTER III:

TOWARDS A PHENOMENOLOGY OF WOOD: CONCEPTUAL VIEW POINT AND METHODOLOGY

To establish the notion of a sense of place and its inter-relationship with materials and processes, this thesis focuses on one material: wood. An understanding of the essence of the material will be attempted through 'active reading' of a Japanese vernacular dwelling through interpreting photographs and drawings of the house that will act as the 'text'. As the first step in this interpretive process which can be regarded as phenomenological, the value of phenomenology to the discipline of environmental design will be presented. This will then be followed by a discussion of the Japanese wooden architecture as the study context, the choice of the particular dwelling and, the intended method of interpretation. Finally, a summary of Thiiis-Evensen's Archetypes in Architecture (1987), which offers the framework for the method, will be presented.

THE PHENOMENOLOGICAL ORIENTATION AND ENVIRONMENTAL DESIGN

Phenomenology, says David Seamon, is "a descriptive science, the heart of which is concern, openness, and clear seeing" (Seamon 1987a. 4). The fundamental nature of a phenomenological work, according to him, is "interpretive and grounded in careful looking, seeing and understanding. Its primary substantive focus is a description of human experience and meaning as they are lived" (ibid.). Borrowing a term from Goethe (1749-1832), who is often called a "proto-phenomenologist", one could describe the phenomenologist as a "delicate empiricist"—one who employs personal experience as the measure of understanding, seeks a phenomenon in its own terms, treats it with care and concern and aims to be free of preconceptions and prejudices. "Seeing," to Goethe, requires dedication, and understanding signifies insight (Lehrs 1958). Phenomenological perspective is imperative to environmental designers interested in facilitating a strong sense of place through their design efforts. In place

making it is important to be concerned with the experiential qualities of a place. The experiential and existential dimensions of place cannot be understood fully through modes of representations and requires reflection and description.

The phenomenological orientation can reveal and sensitize the designer to a multitude of elements that are taken for granted. The physical materials that "build" architecture is one such aspect that is more than a simple arithmetic component of the environment. Materials and construction processes contribute to the experiential and existential dimensions of place and can not be understood fully through modes of representation and tools of quantification alone. Reflection and description are indispensable towards a true understanding.

Phenomenology stresses actualization of contact and suspensions of presuppositions. A suspension of "a priori" notions is necessary to open the possibility of discovering and inventing that is much needed in environmental design. For the essence of discovery lies in the fact that one does not fully know what one is seeking. In a sense, "imaginative transposal" has always been a natural method to architects who employ various modes of representation to evoke an experience of the real building. Yet, mediums of representation can become ends in themselves and alienate the designer from reality. Goethe in a similar sense distrusts the research instruments of science for their potential to increase abstractness and alienate us from the reality of experience. Modes of architectural representation hint only at appearances, and for them to bespeak the experiential content, the viewer's active imagination becomes necessary.

In terms of method, one of the most important aspects of phenomenology is the stress on actual contact. The obvious taken for granted world is the focus, and the description is grounded in real experience. The researcher participates not excluding his/her subjectivity, as a positivist researcher would, but with a belief in inter-subjectivity. Therefore, as a fully involved experiencing human being, and not as a mere non-emotional servant of science. To gain a general understanding of a phenomenon, the researcher would study and faithfully

describe its physical manifestations in more than one time and location in order to disclose its essence.

Phenomenology promises an intimate and holistic knowledge as opposed to the segregated piecemeal "information" that methods borrowed from science yield. There is no natural dichotomy between the knowledge of intimacy and knowledge of the mind; between the knowing one derives from being immersed in a situation, and the insight one gains by displacing and distancing oneself from the situation. But there exists a tenuous relationship between the two types of "knowledge," abstract and concrete we might refer to them, allowing the possibility of one dominating the other. It is perhaps to this that Kahn refers to when he remarks:

Knowing is one thing and knowledge is another...Knowing is of value when it passes through your singularity (Wurman 1986. 234).

It is again this distinction that prods him to observe:

The architect is a person. The professional is not a person (ibid.).

As a person one is still in touch with the situation while, often times, the acquired knowledge of a professional threatens a disjunction from it.

The positivist method, and its attendant attitude of compartmentalized looking, by now appears to be habitual to the western world. It aims at systematic and objective knowledge that is applicable in all "similar" situations. That being the aim, the situation at hand is often treated with indifference and much of its uniqueness is ignored. The prescribed research method that mediates the subject and the "object" of study creates the same alienation that tools of science and technology do. Characteristic too, is the manner of treating the constituents of a thing in an isolated and compartmentalized way. The understanding arrived at, when applied in a "similar" situation renders that too, anonymous. Results of such exercises are the omnipresent standardized environments; and places of distinction, those that fiercely retain their identities, are elevated into tourist centers. Subjective emphasis, on the other hand,

as a reactionary response to the resulting anonymity of environment, renders each situation so unique as to negate the need for pursuing any common knowledge and produces, yet again, an environment of fierce individualism and cacophony.

It is the pursuit of systematic knowledge that the phenomenologist shares as a common goal with the positivist researcher. The phenomenologist, avowed or implicit, is interested in the persisting essentials which requires a thorough participation. In architecture these are the underlying structures of person-environment relationship—a dynamic two way relationship which does not treat the environment as the inert "object" and the human as the subject whose will determines all meanings.

TOWARDS A QUALITATIVE UNDERSTANDING OF WOOD

The broad question that motivates this thesis is how wood as a building material contributes to the world of architecture? The focal aim of such an inquiry would be to discover the non-variant singularity of the material as it imparts an essential character to wooden architecture at large. The nature of wood as a building material will have be sought for understanding relating it back to the tree as a universal symbol. The following can be considered as a set of general questions that can offer direction to such a study:

- What does wood "represent"?
- How does it offer itself to be shaped and transformed?
- What does it suggest in attempts to reshape and assemble it to build architecture?
- What natural symbolism does it speak of?
- What is the sense of wood in a human-made place; What is the experiential content of architecture in wood?
- What makes wood feel "natural" or "unnatural"?
- What constitutes "workmanship" in architectural usage of wood?

In order to understand the essence of the material, that is, its values and meanings that

the importance of the profile Thiis-Evensen compares two basic types of profiles.

First, is the straight profile, which is a cut through the depth of the wall at right angles to it. The next is the diagonal, which can be interpreted as the 'beginning' of profile's articulation. The straight profile represents the absence of the expression of the profile in that it reveals the success of the external force in penetrating the interior. The meaning of the window as the expression of what is inside is weakened. The diagonal profile stores and communicates the interior's resistance through the walls. "the narrowing of the hole itself shows that the wall itself is about to close" (ibid., 259). The wall gains an additional weight and substance and the opening, contained within the perspective of the profile, appears to lie deeper (ibid., fig. 358., 256).

Two conditions affect the form of the window in its expression of the motion from within the space (ibid., fig. 367., 261). First, is the expression of motion innate to the particular form of the window itself. A vertical window, reflecting in form the image of an upright human and suggesting the possibility of entry, accentuates the "motion coming from the inside and thus strengthen contact with exterior space" (ibid.). The horizontal window, similar to the horizontal wall "encourages lateral motion..that cuts across the inside outside contact" (ibid.). In contrast to the flat wall in which neither the width nor the height dominate and a neutral motion impulse results, the centralized window emphasizes the powerful penetrating force from the interior. The horizontal window, through emphasizing guiding our motion along the wall, reduces horizontal communication through the depth of the wall and the contained space is isolated and protected.

Further, when the horizontal window becomes a wide opening, a sense of insecurity descends. The lintel begins to appear weak and the wall threatens to fall through. The vertical window, which can be an arched window affects different expressions corresponding to the nature of the arch. The pointed arch in which the vertical expression has reached its height seems to cut through the wall directly above itself. The domination of the vertical expression,

"What is Japanese architecture?" appreciates the range in Japanese architecture that often approaches the extremes and therefore "seems to delight in opposites and contradictions" (Horton 1983, 9). Extremes are seen in sizes and height of buildings, the range of expressions, surface treatments, and age and time. In spite of these variations, which he suggests the reader can endlessly extend, the Japanese architecture manifests a certain character and exudes a strong identity.

Among the bed rock of similarities that binds individual examples of Japanese architecture together "the most fundamental point of commonality" is the use of wood (ibid.). Wood is omnipresent in the architecture of Japan. Examples of wooden architecture, from the monumental to the most ordinary, from the primitively simple to the technically and stylistically complex are found densely packed in the island of Japan.

Although the fluid spaces and the rectilinear geometric expressions of the Japanese architecture are akin to the visual ideals of early modernists, these aspects can not be appreciated without including the sensitive use of the material. Werner Blaser, commenting on the Japanese sensibility to wood, observes the western preoccupation with form which contrasts with the Japanese "pursuit of perfection in an already given form" (Blaser 1961, 9)

Within the Japanese tradition of wooden buildings the folk houses, referred to as Minka, form a substantive body of exemplary wooden architecture. The Minka is the traditional dwelling of Japan. The fact that Minka dwellings have continued to evolve from their archaic and primitive sources surviving the test of time, all the way till recent history elevate them as a venerable tradition. Wooden architecture of Minka, almost always the direct product of the builder and the dweller is both surprisingly uniform and richly varied. Traits from the primitive archetypes still survive even in the highly refined Minka. Although one finds great variety of regional styles in the Minka, the archaic roots of the primitive dwelling, and the usage of wood impart a cohesiveness to these and integrate them into one tradition.

Within this tradition, again, wood usage can be extensively studied relating to many

openings (fig. 9). Above, the roof is gabled as well as hipped. The hipped portion seems to intervene and strengthen the horizontal expression of the wall which would have been lost if the gable surmounted it directly. The formal gateway at the left end invites inward movement and the wall itself, as Thiis-Evensen would describe, urges one 'to move along'. The adjoining compound wall further enhances the horizontal expression.

Inside the premises, the southern wall of the store-room again manifests the qualities of the horizontal wall. On entering through the gate, one is guided by this wall to the 'open middle' that was described earlier in the breadth motif. The wall's own form is complemented by the horizontal expression of the windows (fig. 12). Another aspect that furthers the expression of the wall is the base of exposed wooden boards. In over-all form the base is horizontal and is in harmony with the motion impulses of the wall. The verticality of the wooden boards, however, lends a sense of lightness to the wall. The boards also draw one's attention upward and then inward through the windows above.

In comparison to the eastern wall that is all rejecting, here one finds the wall to be a little more receptive to the outside. First, the three windows support this experience. Although covered with horizontal louvers that close visual connection to the inside, the windows nevertheless appear as 'weakened' portions of the wall that seems mostly massive and plastic.

The entire wall itself appears to be an infilled skeleton. On the two ends are vertical posts and the wall has a base of vertical wooden boards. The plastered wall surface fills in this spatial boundary and the whole wall is imparted a composite character which in turn evokes a sense that the wall is 'light'.

The formal entrance with a gable end, which was seen earlier to mark the left motif in terms of the breadth theme, expresses the nature of the vertical wall. As a clearly recognizable entry, it gathers the horizontally spreading movements to itself as the center, and expresses ascension through its gable (fig. 2). Further, being open and light, it promotes a direct communication of inside/outside spaces. Whereas the openness of the horizontal south wall

The reflective descriptions will be guided and organized through the conceptual frame work that Thomas Thiis-Evensen's "Archetypes in Architecture" offers (Evensen 1987). The three themes of the archetypal floor, roof and wall, which he claims are the elements of architecture sharing the fundamental role of creating inside/outside relationships, become the ordering device. In the reflections upon the nature of the wooden walls, floors, and roofs the common focus of inquiry will be, as Norberg-Schulz might ask, "How does the wooden dwelling stand on the ground and how does it rise towards the sky?". This binds the individual essays into a whole and prevents compartmentalized looking.

Conceptually, the phenomenology of wood borrows many of the underlying beliefs, intents as well as the method of inquiry of Thomas Thiis-Evensen's Archetypes in Architecture, which offered itself as a model for the interpretations. To get an objective overview of this book, and also definitionally describe some of the terms which are used in this thesis, a review of this book becomes necessary.

ARCHETYPES IN ARCHITECTURE - An Intersubjective Theory

In the "global village", that some claim our modern world has become, there seems to be an interest to evolve a unifying architectural theory. The elaborate rationales and the organized efforts of many architectural movement suggest such a desire. This desire springs from a disquieting hyper-awareness that the modern world, in terms of architectural values, shares very little in common: varieties of influences have to be understood, assimilated, and resolved to result in an architecture of our times. Yet as theories are developed they also seem to hold a characteristic belief that lives of people around the world (at least in the developed and the developing countries) are somehow very "similar", now that distances and time have been shrunk and cultural exchange is at a historically unprecedented level.

Often one hears of the focal concern of this attempt at a unifying theory: appropriate architecture for the modern world; to forge a monolithic statement to guide our actions.

Humankind still does not seem to have recovered from a realization of the profound disjunction of our times with the rest of human history. The stress is still upon how we, the inhabitants of the modern world, are so "different" from people of earlier times, but little observation is made on what patterns connect us with the past, and how we are the same. Indeed it is this which is lacking, a focus on commonalities, a search for the persisting underlying structures of person-place dynamics, that could promise us any complete theory that can be shared. It is such an aim, to develop a theory of architecture based on commonalities in human- environment relationship, that can be seen to underlie Thomas Thiis-Evensen's "Archetypes in Architecture".

Phenomenological orientation in the study of environment has increasingly gained significance. A "practical crisis" in the field of design arising out of dissatisfaction with both architectural formalism and functionalism is suggested as reason for the growing interest in the phenomenological perspective (Seamon 1987a. 4). One recent work that attempts a phenomenology of form is Archetypes in Architecture by the Norwegian theorist--Thomas Thiis-Evensen. Thiis-Evensen's aim is to develop a theory of architecture based on commonalities in human-environment relationships. He contends that post-war architectural experience has been characterized by a contrast between two extreme positions: one, is exclusively subjective and anti-pedagogic and produces "expressive" works; and the other that dogmatically adheres to technology and produces "schematic" architecture.

His aim, in seeking a remedy for this dichotomy, is a theory based on the "entire phenomenon of architecture." His focal interest here is to classify and describe a set of "archetypes" relating to architectural form, in order to arrive at an understanding of the "universality of architectural expression." Such knowledge preceding design, he contends, will deliver us from both the anonymity of machine aesthetics as well as the arbitrariness of Post-Modern borrowing--"a more reliable basis for the emotional content of architecture can replace the generally subjective 'feelings' about buildings" (Thiis-Evensen 1987. 9).

The Archetypes

Asserting, at the very outset, that immediate responses to a building are primarily "qualitative," the author primarily concerns himself with exploring the emotional content of architectural forms with an explicit belief that such understanding is essential for design. Thus the book has a design oriented goal. Archetypes of architecture, which for him, refers to certain basic forms that have been varied and combined throughout history, become the elements to be classified and described so that their expressive potentials can be understood. He cites Paul Zucker's usage of archetypes in the book Town and Square as the first and systematic instance within architectural theory and employs a similar model in looking at architectural forms (ibid. 17). This is done by drawing on a extensive range of historic examples of architecture and interpreting them in relation to the archetypes.

The specific "archetypes" discussed here are those that constitute spatial delimitation: the floor, the walls, and the roof--the basic elements of architecture. Thiis-Evensen prioritizes these over spatial volume itself, calling to our attention that delimitation and volume are mutually dependent, and to the specific interest to study building as a specific phenomenon. In doing so, he frees himself from the potential danger of treating form in an abstract way. The implications of the material that "build" architecture get included at the very beginning of his approach.

In discussing archetypes, Thiis-Evensen identifies and excludes the time bound and place bound aspects that are in some ways, determinants of form. These to him are the technical, economic, functional, and even stylistic factors. Archetypes herein are explored specifically in relation to their psychological effect. Even in this, Thiis-Evensen leaves out experiences that are contingent upon personal associations as well as those that are socially borne by people due to specificities of their cultures. The focus here is on the persisting phenomenon of architecture--the dialectics of inside and outside interpreted from the bodily experiences that are gained through interaction with the natural phenomena.

The three "basic elements" are linked by a fundamental commonality that Thiis-Evensen identifies--"they balance the forces of inside and outside", which is the essence of shelter. An interior is created by excluding, to varying degrees, an undifferentiated exterior that is around, above and over us. Such an interpretation helps us to understand the creation of a complete shelter as a simultaneous act of all three elements. The qualitative differences of directions such as above and below, before and behind are not rejected as can be seen in the individual explications of each element and in the discussions of deeper meanings. The argument here is that the dialectics of inside-outside is a persisting phenomenon. All three elements address this but in different ways.

Delimitation thus becomes the fundamental theme of human dwelling, and the fundamental role of the three elements: "the expression of delimitation is "visualized" in the space between opening and closure" (ibid. 19-22). Norberg-Schulz in a parallel way asserts: "the outside-inside relation which is a primary aspect of concrete space, implies that spaces possess a varying degree of extension and enclosure," and quotes Heidegger to emphasize the primacy of delimiting elements of the boundary: "A boundary is not that at which something stops but, from which something begins its presencing" (Norberg-Schulz 1980. 12-13).

In trying to evaluate the elements Thiis-Evensen suggests reflecting upon and describing what an element or form does: if it "rises" or "falls," "opens" or "closes" and so on. He argues that such an exercise necessarily leads us to consider three qualities that he terms as "existential expressions"--motion, weight and substance. "Motion describes the dynamic nature of elements, whether they expand contract or are in balance. Weight describes the heaviness of the elements and is related to gravity. It describes whether they stand, fall, weigh down or lighten up. Substance is related to the materiality of the elements, whether they are soft, hard, coarse, fine, warm or cold" (Thiis-Evensen 1987, 19-21).

Thiis-Evensen goes on further to explain these three concepts as not only constituents of the physical buildings but as the basis of human experience of the environment. Common

experiences arising from interaction with natural phenomena such as gravity, he says, can be described in terms of motion, weight and substance. These three qualities become the clue to understanding and evaluating architecture by comparing what the existential expression of form suggests with what is expected of a building in a specific context—"...the existential expression of form is always there as the very reference...." (ibid.).

At the broadest level, the Norwegian author's work, which is a reflexive and descriptive research on the essence of architectural experience, can be interpreted as implicitly phenomenological. It postulates, and concerns itself with, the "constant phenomena" in architecture which the author defines as the inside-outside relationship, the foundation for commonalities of architectural experience. Phenomenologically this can be explicated as a belief in "intersubjectivity." The "universal" level of architectural experience which is differentiated from the "personal" and "social" level by its persistence across time and locations, and autonomy from cultural and other variances, Thiis-Evensen says, is grounded in our bodily experiences and that "we transfer them on to what we see" (ibid. 29).

In addressing himself to his focal concern—form and its natural expression—the author takes a sincere descriptive approach aiming to let the forms themselves "speak." This in his terms is the "existential expression" of forms. Thus he approaches the phenomenon on its own terms, and without such presuppositions as temporal or place specific criteria deriving from technical, economic or functional needs.

The basis of the work, which itself is elaborate and exhaustive, is eidetic in nature. As a theory of architecture "archetypes" asks what specific emotional reactions are evoked as a person confronts an archetypal form. The underlying belief in this exploration is that a "natural" language precedes stylistic, economic, cultural and even personal influences upon the built work. Thiis-Evensen, in his interest in what the forms "do", or "want to be" is not alone. Kahn, for instance, spoke about the "existence will," a pre-existing desire in architecture; or elsewhere, about what a brick or the building "wants to be", as Norberg-Schulz illuminates

Kahn's deep rooted quest for the existential dimension of architecture.

CHAPTER IV:
A SUMMARY OF THIIIS-EVENSEN'S
THREE ARCHETYPAL ELEMENTS OF FLOOR, WALL, AND ROOF

THIIIS-EVENSEN'S ARCHETYPAL FLOOR

The first of the three major sections of Archetypes in Architecture, explores the essential qualities of floor as a basic element of architecture. The underlying intention of this exploration is to identify the nature of inside/outside relationship that floor as an element brings forth. Thiiis-Evensen identifies three existential functions as being fundamentally what the floor does: "It directs us from one place to another, delimits a space from its surroundings, and it supports us by providing a firm footing" (Thiiis-Evensen 1987, 36). The three functions or themes of directing, delimiting and supporting, form the basis for developing a set of "motifs," or archetypes for Thiiis-Evensen. He does this through employing many historic examples of architecture and describing how their floors relate to these existential functions of floor.

Thiiis-Evensen contends that the support that the floor yields, fundamental to human existence, is the most significant of its three functions. While the other two existential functions of delimiting and directing can be done by the walls and the roof, it is the floor alone that can support us. Therefore, much of the section on the floor elaborates the theme of support. Since support assumes primacy, the floor's vertical relationship with the space beneath—the natural ground becomes the source of its existential expression and understanding the nature's floor as an experienced phenomenon becomes critical.

The ground, Thiiis-Evensen explains, is made up of two parts: a surface and a mass. The expressive potentialities in nature's floor is derived through the interplay of surface and mass (ibid., fig. 26, 37). Thiiis-Evensen believes that the experiential qualities of the floor are varied and colored by the experienced relationship of the surface to the mass: "...whether the surface appears to be independent of, dependent upon, or part of the underlying mass" (ibid., 39).

The same surface of snow will be experienced varyingly depending upon whether the mass below is rising, sinking or level. On the other hand, the form of the ground might remain the same while the surface will feel heavy and seem as a part of the ground if it is of stone, and appear to be a light cover, if it is of grass. The mass, although it can vary in form depending upon topography, still has a permanent meaning as it offers the support through being firm and solid: "This firmness is a precondition to our existence on earth, embedded within us as a fundamental feeling of security" (ibid., 37).

The relationship of surface to mass is complex and dynamic. Thiiis-Evensen summarizes this by graphically showing six most essential kinds of relations which represent the basic expressions of natural floor and form the basis for variations (ibid., fig. 30 a-f, 40). He also outlines the existential meanings that derive from these basic relationships. The depression of the floor below the ground faces us with the more primordial forces and the unknown, and we are "in the clutch of the ground" (ibid., 39). On the other hand if the floor rises above the ground, a feeling of independence results. The surface as it lies on the firm mass yields us a natural feeling of security and stability. The manner in which the descends or raises is also crucial as it will affect the meaning significantly: "If the surface cracks and breaks open we 'fall'... If the earth sinks as in a trough.. we feel we are being guided down" (ibid.). Or in the case of the rising floor, "if the surface breaks from the ground and rises sharply, the top level will be isolated and limited. But if the surface is undulating, it gives the impression of being pushed upwards..." (ibid.).

The supporting theme, which Thiiis-Evensen sees as the manifestation of nature's floor, forms the basis for the motifs. Thiiis-Evensen argues that, of the three existential expressions of weight, substance and motion, the directional and the delimiting themes relate primarily to the motion tendencies of the floor. The directional quality of the floor concerns floor's role in connecting spaces. This can be achieved through manipulating its surface patterns, or its form (ibid., fig. 31a-c, 42). Additionally the floor can also be expressed as a path to create

connections between spaces. The delimiting theme relates to the containing of space which implies a restraining of movement and spatial connections.

The supporting theme on the other hand relates to the weight and substance characteristics of the floor. This is because of its inherent vertical relation to the ground below; in Thiis-Evensen's words the "exterior" below. The questions of whether the surface is below, above or on the mass is inescapably bound to its experienced weight which in turn is connected to the material that makes the floor: "the "speed" of the motion in a wooden bridge arching above the ground is completely different from that of the same bridge built of stone and lodged heavily to the ground" (ibid., 49; fig. 43, 49). Again, the same floor lying on the ground will seem attached and heavy if it is of stone and detached and light if it is grass or a carpet. The distinct experiential difference arises out of the apparent weight of the floor and the specific substance.

The motifs, or the archetypal forms of wooden floor that Thiis-Evensen interprets from history are six: The attached floor, the sunken floor, the open floor, the rising floor, the detached floor and the directional floor. Since materiality is an inextricable aspect of each of these archetypes, the wooden floor manifests only some of these types strongly. For instance, the attached floor conveys the feeling of a solid footing (ibid., fig. 44, 51). The similarity to the ground which is its character is yielded by appearing heavy. This prerequisite of resemblance to the ground precludes not only materials that convey lightness but also those that are geometric (ibid., fig. 45). Whereas rusticated stone creates the attached floor the wooden floor "will always maintain the character of a detached layer above the ground" (ibid., 51; fig. 46, 50).

Cursory review suggests that the wooden floor manifests more readily the motifs of open, detached and directional floors. However the interpretive inquiry of the archetypes in wooden floors will be done relative to all Thiis-Evensen's motifs as a conceptual background to recognize qualities of any of the types, even if they occur in a subtle way.

THIIS-EVENSEN'S ARCHETYPAL WALL

"The purpose of the wall," Thiiis-Evensen claims, "is to delimit a space and to the support roof" (Thiiis-Evensen 1987, 116) The wall differentiates and mediates an inside in relation to an outside. The degree to which an interior space is drawn outside, or an exterior space is drawn inside is determined by the wall and also becomes the foundation of the wall's expression. Thus the wall becomes a manifested expression of the relationship between "an attacking exterior and a secure interior" (ibid., 116). Thiiis-Evensen then describes the wall, visually and experientially, in order to understand the dialectic relationship between the wall's expression and the strength relationship between interior and exterior spaces.

Again, as with the floor, Thiiis-Evensen argues that the three existential qualities of motion, weight and substance form the experienced basis of the wall's expression: "a heavy wall will seem more closed than a light one.." (ibid., 117) This statement implies that the felt weight of the wall affects our perception of how penetrable the wall is. Through varying the openings and the overall form, the wall also expresses different qualities of motion: "a large door stimulates a spontaneous impulse to go through it, whereas the small, low door arrests our movement" (ibid.). Finally, the substance of the wall affects its expression of penetration: "...a soft wooden wall conveys warmth and is inviting as opposed to a rough stone wall which is 'cold' and rejecting" (ibid.).

The interface between the interior and exterior spaces is mediated by the wall in three different directions--through breadth, height and depth. In other words, the wall mediates the interior and exterior spaces that are in front or back, above or below and to the right or left (ibid., fig. 144, 117). These are all directions that are qualitatively different and replete with meaning. Exploring and describing these directional dialectics of the wall offer a path to understand the wall's expression of the inside/outside relationships.

Thiiis-Evensen discusses and elaborates breadth, height and depth as the major themes of the wall and identifies archetypes that evolve from these major expressions of the wall,

which will be summarized and presented in the next sections. Attention will also be drawn to Thiiis-Evensen's explanation of the existential reasons that imbue these directions with meaning and differentiate them from the abstract x, y, and z axes. This is important in presenting Thiiis-Evensen's explications of the wall archetypes, particularly his notion of the energy fields perceived on the surface of the wall.

The Breadth Theme

The breadth theme relates to the wall's expression that derives from the horizontal extension of the wall. In the breadth theme, Thiiis-Evensen identifies 'fields of energy' on the surface of the wall that are created by the extension of the wall and the way it terminates on the right and left. A central field of energy mediates the two peripheral fields that occur as a result of the walls expressed desire to extend. The three fields of energies are together referred to as the "vertical tripartition" of the wall, which exists as an archetypal reference to interpret the breadth characteristics of any wall (ibid., 119; fig. 145, 118).

The dynamism of these energies are transmitted to other elements such as openings that are placed in the wall, causing them to acquire either a sense of balance or tension depending upon their exact placement in relation to the wall's pre-existing fields of energy. Thiiis-Evensen convincingly presents this argument through a diagrammatic example in which an opening is moved to different places on a given wall (ibid., fig. 146a-d). The opening animates the surface of the wall through the tension created by its specific location on the wall relative to the three fields of energy.

He argues that the three energy fields, and the qualitative differentiation of left and right directions are grounded, first, in the experience of symmetry which is an inescapable human condition. Thiiis-Evensen draws from the field of psychology to explain the basis of symmetry. Grounded in the experience of gravity and the senses of balance and imbalance, symmetry is crucial to existence. Symmetry is also founded on human self image that is

translated to the environment: "the shoulders terminate and secure our bodily extension, just as the wall terminates. And the head terminates the veritable counterpoint of our element of communication, just as the central section of the wall is the central location for the location for the wall's openings between inside and out" (ibid., 120).

Notwithstanding the human preoccupation with symmetry the directions of right and left are still qualitatively different. Thiis-Evensen says that, historically, right is differentiated from the left as the stronger and more preferred side. Thiis-Evensen gives various cultural and linguistic examples that connote strength and goodness with the direction of right.

In addition to the anthropomorphic explanations, Thiis-Evensen relates the three energy fields of the breadth theme to spatial aspects, thereby linking the experienced surface characteristics of the wall to the dialectics of inside-outside. The tripartition of wall expresses both the formal characteristics that helps us to orient ourselves within the space, and the existential meaning of the space which relates to our final possessing of the space by occupying its centrum. The centrum of the space is the experienced center of the space, the goal that stimulates our movement inward: "confronted with a house or space, an individual will...seek to reach this space by projecting himself into its centrum" (ibid., 121; fig. 147, 121).

The centrum of the space, which need not be the geometric center of the space, is also perceived as the "here" while the peripheral spaces remain as "there." Centrum of the space which is our goal of our conquering becomes, in terms of individual possession, the personal space of action thus inviting outward movement. The centrum of a space is then a place for the space's communication with the surroundings..." (ibid.). The corners of a space, on the other hand, give a perceptible form to the space and tell us "where we are" (ibid., fig. 148,149).

In terms of the three fields of energies of the breadth theme, the central section relates to the centrum of the space and the right and the left fields to the corners of the space. Thus, Thiis-Evensen says, the three areas of energy acquire different meanings. For example, the opening of the middle field yields a sense of publicness to the contained space and

strengthening of the side fields yields a strong figure to the space and image to the building.

The breadth theme is represented by four motifs: breadth, split, right and left (ibid., fig. 165a-d, 133). In the breadth motif, the middle section dominates and the corners are accentuated resulting an open, public character and a strong form: "the motif is generous and receptive, the entire building expands outward either by pushing the corners to the sides, or by springing out in order to meet us" (ibid., 125; fig. 151, 122). Thiis-Evensen cites the Villa Rotunda as an example of this motif and illustrates how the surface energies that he describes through simple diagrams are in fact qualities that are not two-dimensional but are the wall's manifestation of spatial dialectics (ibid., fig. 150).

The split motif is the opposite in character to the breadth motif in that the corners dominate over the middle section and the contained space is private and protected (ibid., fig. 152b, 123). The breadth and the split motifs have as a common feature the centrality of the middle field which either dominates or is suppressed thus resulting in the two motifs. The right and the left motifs are variations of side motifs in which the middle field of energy moves to one side and strengthens one corner and weakens the other (ibid., fig. 152c,d). Upon entering the space we "...gravitate towards the strongest corner...because the strongest most clearly characterizes the interior as a delimited and secure place .." (ibid., 125).

The Height Theme

Next, Thiis-Evensen treats the height theme of the wall. The wall in this theme again manifests three fields of energy (ibid., fig. 161, 128). Related to the perceived motion tendencies of the wall, in this case the vertical movement, the three fields attain different expressions due to the different meanings of the sky and the earth towards which the wall seems to move. Similar to the breadth theme where the right and left sides differed qualitatively, the top and bottom fields of the vertical tripartition also differ in directional tendencies and meanings.

The top field, which rises to meet the sky, appears lighter and seems to rise and the bottom field, meeting the earth, tends to seem heavier and appears to sink (ibid., 129). Thiis-Evensen illustrates the rising and sinking motion expressions of the wall through, once again, a diagrammatic example of a wall across which an opening is shifted to different locations. The window makes manifest the embodied energies on the wall and gives it a rising or a sinking character through its specific location (ibid., fig. 162, 128). What according to Thiis-Evensen, is the reason for our experience of the wall's surface as a vertically differentiated fields of energies? Thiis-Evensen posits that the experience is rooted in the notions of up and down. The vast expanse of the sky connotes the natural meanings of lightness and freedom to that which moves up, and the pulling force of gravity renders that which is down as heavy and bound.

In the vertical expression of the wall two opposite motion impressions are simultaneously recognized, which Thiis-Evensen describes separately. One is the motion downwards that is caused by the omnipresent gravity that draws all things to the ground. The other is the motion upwards that is experienced as the manifested will of forms to defy gravity and stand erect—a prerequisite to survival on earth. The upward motion in the wall which Thiis-Evensen regards as "a purely experientially-defined contrast to the pull of gravity" (ibid., 131), results also out of the walls rising to support itself and the roof and as a result of approaching the unbounded expanse of sky against which the top of the wall is seen.

The variations of the three fields of the horizontal tripartition of the wall yields four wall motifs. The first two—rising and sinking—arise from a middle field which is constant in size but is moved in the vertical direction (ibid., fig. 165a,b, 133). In the rising motif the middle field is "pushed" upward by a rising and rejecting lower field which is hard to penetrate. Conversely the upper field opens the interior space "outward" (ibid.). The sinking motif in contrast allows us to enter easily while the space is closed above. The split and the opening motifs result by the contraction and expansion of the middle field which in its location

remains essentially central (ibid., fig. 165c,d).

The Depth Theme

This-Evensen examines the depth theme in much greater length than the other two themes, since depth is "directly concerned with the communication between inside and outside" (ibid., 117). Of the two functions of supporting and delimiting that describe what the wall does, This-Evensen regards the delimiting function to be more directly related to the walls expressive potential since supporting a roof is "a particular architectonic problem" (ibid., 116). This-Evensen prioritises the delimiting function over the structural support of the wall. The expressiveness of the wall that derives from the way it supports the roof, is included in the thematic explication of the wall's directional qualities, particularly through treating the rising and sinking motions of the wall. This-Evensen's emphasis on the delimiting function over the function of support is consistent with his primary aim of explicating the three elements of architecture in relation to their delineation of inside and outside—the fundamental commonality of the three elements and the constant phenomenon in architecture.

This-Evensen elaborates the depth theme by deriving four categories that determine not only the depth qualities of the wall but also the wall's breadth and height expressions: the main form, the building system, the openings and the articulation (ibid., fig. 177, 141). These will be referred to as sub-themes of depth and their essential points will be presented. Of these This-Evensen treats only the first three as individual sections. Articulation refers to the "dimensions, the way in which various parts are joined together, the division of the wall, as well as the texture and colors" (ibid., 140). Articulation underlies the three other categories and This-Evensen does not discuss this separately.

Main Form

Main form as the sub-theme of depth explores how convexity, concavity, slanting

width and height of the wall affect the inside/outside dialectics. Thiis-Evensen identifies eight forms as the basis for combining and varying: horizontal, vertical, flat, convex, concave, straight, leaning toward and the leaning away (ibid., fig. 178a-h, 142). In the effort to understand the essential aspects of each of these archetypes, Thiis-Evensen's focal interest is the particularity of the inside/outside relationship that each major form promotes. The eight archetypes represent three groups. Horizontal and vertical walls involve the width and height properties. Flat, convex and concave walls relate to the depth and finally the straight, leaning towards and away affect the sense of security. Thiis-Evensen groups these eight archetypes since they share the characteristic of affecting primarily the motion expression of the wall.

Whereas the horizontal wall, drawing our interest to either side, arouses the motion to follow along, the vertical wall concentrates our attention and arouses an upward movement. The flat wall stops and rejects the outside, the convex walls thrusts the inside space into the outside and the concave wall, evoking the image of open arms invites inward movement. Finally, the upright wall appears stable and is non threatening to the spaces and people on either side while the slanting wall, which implies a downward movement that is imminent, threatens the security of the people and the space towards which it tilts.

Building Systems

Building systems as the second sub-theme of depth examines how massive and skeletal building systems and combinations of these two create specific inside/outside relationships. Again, motion, weight and substance are the shared basis of the experience that these building systems create. Thiis-Evensen identifies four motifs basic to the building systems: massive, skeletal infill and layer systems (ibid., fig. 190a-d, 154). In the following, brief outlines of Thiis-Evensen's in-depth interpretations of these four motifs of building systems will be presented, focusing particularly on the organization of his interpretations. Some of his particular arguments that are relevant will be integrated with the interpretations

of the specific examples.

A massive system, experientially, creates walls that are "both supporting and delimiting" (ibid., 163). These walls are either formed as a solid mass (as in a mud or concrete wall) or from blocks of brick or stone. The felt weight of the massive wall and the particular sense of closure that is created is affected by its thickness as well as the surface properties such of texture, pattern, relief and color. All of these in turn are inherent to the specific building method. Thickness of the wall affects our experience of the wall's sense of enclosure since "a thick wall corresponds to something inert and close in that thickness indicates compactness and inner resistance. A thin wall, on the other hand, has more the character of a light film and as a result seems more vulnerable" (ibid., 167; fig. 209, 167).

The impression of thickness is communicated through three modes. The main form influences the perceived thickness of the wall: "...a curved wall seems thicker than one which is straight, a sloping wall thicker than a vertical one, a low one thicker than a high etc." (ibid.) Next the openings reveal the thickness of the wall and therefore are determinants of the wall's experienced thickness. Last, the materials express the weight of the wall which we understand on the basis of direct experience with the materials.

Thiis-Evensen argues that massive wall system falls into two fundamental categories of building methods: the molded wall and the masonry wall (ibid., fig. 210, 169). He probes into these two types to explain why the masonry wall appears thicker and heavier than the molded wall. Exploring the specific qualities of the molded wall, Thiis-Evensen reflects upon the surface properties of textures and patterns and their influence on the experience.

A key aspect he identifies as affecting our experience of the masonry wall is the familiarity of the units that are piled upon each other (ibid., 169). Be they bricks or stones or wooden logs, they tell us something about their weight and also suggest the thickness of the wall. Both these are grounded in our past experiences with the materials.

The skeleton system, in contrast to the massive system, is inherently open and is

symbolic of the tree (ibid., 163). The column and the beam, the primary elements of the skeleton system, combine and vary to form three type of frames: straight, arched and quadrangle. The frames combine to form three types of rows: colonnade, arcade and the grid. Finally rows of varied motifs are combined to create patterns (ibid., fig. 239, 193). The strength relation of interior/exterior spaces that the skeleton wall creates is first related to its expression of support—that is, the perceived strength of the frame and its influence upon one who wishes to enter (ibid., fig. 243, 195). The second factor relates to the actual size and shape of the opening and the articulation of the columns and elements and how all of these impel our movement and passage. Thiis-Evensen refers to these as the support expression and motion expression respectively (ibid.). Relative to these two expressions, Thiis-Evensen examines individually the primary elements of the skeleton system—the column, frame and beam.

He argues that the column is the most characteristic element of the skeletal system since "...it is the column that opens a building by making the walls redundant, and it is the column itself that is the intermediary of motion between outside and inside" (ibid., 165). In the column's expression of support Thiis-Evensen interprets two alternating motion tendencies of rising and sinking which we also experience within ourselves. The alternating motion tendencies suggests, as with the rising properties of the wall, three fields of energy that define the column's capital, shaft and base.

First Thiis-Evensen considers the shaft and how changes to its shape, height and surface properties lend it varying expressions of support. For instance, between a circular and a square shaft," the circular shaft appears stronger because it is a closed form, concentrated inwardly upon itself." The sinking or rising expressions are also created by the entasis and its exact articulation. Whether the column appears to sink into the ground, or seems to push itself off the ground depends on both the location of the entasis relative to the height of the column as well as on whether the column seems tall or short. Finally, the texture and the color of the

column affect the implied weight of the column and its load bearing expression. The fluting on classical columns, which Thiis-Evensen treats in great detail, can appear as penetrations into the very substance of the column's material or appear as merely decorations on the surface of the column that accentuates its plastic character (ibid., fig. 251, 199; fig. 259-260, 204; 204). It is the depth and relative dimensions of the fluting that make it seem one way or another.

Next, Thiis-Evensen explicates the expression of support that arises out of the column's capital and base which he calls the head and the foot. He interprets the three classical orders--Doric, Ionic and Corinthian--and explains how each create a specific visual expression of support. He concludes that the archaic Doric column "is a visualization of the collision of opposing forces rather than the fusion of them.." (ibid., 207). The Ionic column, on the other hand "...conveys soft compliancy...and settles obediently but resiliently.." (ibid., 208). Unlike both these that mediate and express opposing forces, the Corinthian column expresses an upward thrust alone (ibid., fig. 262, 206; 209).

After discussing the column's expression of support, Thiis-Evensen explores its potentials to impel or repel movements. Although the relative height and the relative thickness of the column either halt or encourage movement, it is the cross-section and the outer surfaces that are more powerful determinants of motion. The round and the square are the archetypal shapes of column which can be combined and varied to result in complex experiences. Whereas the round column permits free flow of spaces around itself the square column restricts free movement and directs it (ibid., fig. 248, 199). In contrast to the inwardly oriented self contained circular column the square column points away from its own center and threatens to "fall away" (ibid., 209).

Having discussed the column in detail, Thiis-Evensen briefly turns to the frame as an entity to point out that in order that the frame appears secure, the column and the beam and the frame's opening must all be in accord (ibid., 223). Unless the strength relationship between the elements of the frame in the particular context of that frame's opening are well balanced a

feeling of insecurity may arise repelling entry into the space. The coordination of the elements draw attention to the beam, which after all is what defines the supporting column as being strong or weak: "danger is first apparent when a heavy oversized beam is supported by columns that are too slender" (ibid., 223; fig. 302, 224).

Thiis-Evensen regards two types as the basic forms of beams from which arise variations and combinations—the straight beam and the arch (ibid., 311a-b, 226). In terms of visual support, the straight beam is the most "prone to deflection"—a problem historically recognized and corrected through a variety of ways. Incorporating a gentle curvature to oppose the impending deflection, extending the sides of the beam beyond the columnar supports as optical correctives and finally emphasizing the keystone are all traditionally employed techniques that help restore stability to the beam (ibid., fig. 305a-c, 225). The arched beam fuses the vertical and horizontal into a totality and emphasizes the support over the vertical stress.

Various support expressions arise depending on whether the arch is pointed, round or flat. These variations of support expression, Thiis-Evensen concludes from a historic explication of the beam's major forms, also invite corresponding "motion impulses in us" (ibid., 235; fig. 330, 235). The opening urges us to 'move along' if a straight beam is overhead, threatens and 'halts' our entry if a sinking flat beam spans the opening. The rising pointed arch 'opens upwards' and invites free communication between the two sides it creates and the balanced round arch in which we see the image of ourselves and "emphasizes the act of entering itself" (ibid.). These inherent expressions of the basic forms of frame and their motion impulses sustain in the repetitive rows that they form. "Thus, an arcade invites penetrative motion, the colonnade a lateral motion" (ibid., 236; fig. 331a-b, 237).

The in-fill and the layer systems are variations of the massive and the skeleton systems of wall. Thiis-Evensen discusses these prior to the two basic systems since these mixed systems involve the experience of an inward motion promoted by the different layers and their

depths. He emphasizes the motion impulses aroused more directly by the infill and layer systems so that the reader will readily recognize the more subtle impulses that the basic systems sustain.

The infill system involves a basic supporting frame that defines the wall's boundary and the space is filled with a massive or a skeletal wall (ibid., fig. 191, 156). The secondary wall is necessarily "subject to the main skeleton and..roughly in same plane" (ibid., 153). This presupposition differentiates the infill system from the layer system which is "composed of wall sections, juxtaposed in depth" (ibid.). Whereas the "infill wall indicates a balance between outside and inside .. in the layer wall this balance is substituted by a stage by stage motion innards" (ibid., 157; fig. 192a-c, 157). The variations of the layer system are four and they are base again on the skeletal and planar elements as one element is superimposed on the other, either on the outside or the inside. Thus, a plane on a plane, a skeleton on a plane, skeleton on a skeleton or skeleton on a plane are all motifs that can be intermediary of motion between outside and inside.

Having treated the question of articulation through extensive discussions of texture, and pattern, Thiis-Evensen concludes the section on the wall's building systems with an enquiry of color and its effect in relation to the two basic systems of wall architecture. Three aspects are important determinants of the expression of color. First, composition relates to the perception of one color in the vicinity of other color(s). Second is the connection between the thing and its color. Finally a person's pre-reflective reactions to colors which is variously explained by experts as being related to sex, age and personal dispositions.

Thiis-Evensen's main interest is to examine if colors hold permanent meaning and if so how colors of the wall affect the balance of inside-outside forces. He argues that colors indeed have inherent existential expressions that we learn through experiences with various natural phenomena. Additionally, he says colors have innate properties of warmth or coldness and weight and size which sets them near or far (ibid., 243). The three properties of color--hue,

brightness and saturation—lend the color a specific sense of weight and temperature. Hue is that which distinguishes a color as a one of the three primary colors of red, blue and yellow. Brightness refers to the degree of whiteness or blackness and saturation relates to the relative strength of the color.

With reference to the wall, Thiis-Evensen interprets the brightness and the saturation of the color as determinants of experienced weight: "Pale and unsaturated colors share the quality of giving a surface the appearance of lightness and openness. Dark and saturated colors share in giving a feeling of weight and closure" (ibid., 244). In relation to the skeletal wall varying the colors of the frame and the intermediate spaces create varying directionalities of inside-outside movements. Within the skeletal system, Thiis-Evensen shows that the darker walls read as 'holes' that are 'open' and the lighter ones expand outward and are more closed. Thus, in depth, the effect of the darker heavier colors are in reverse to their effect upon height.

Finally, Thiis-Evensen discusses the hue of a color as a property that actively affects our thermal experience of a space and also create a dynamic experience by appearing to either retreat away from or advance towards us.

Openings

As the third and last subtheme of depth, Thiis-Evensen presents an experiential description of openings, which he defines as either a hole in a planar wall or an change in rhythm of a skeletal wall. The precondition is that the opening is perceived as a figure on the background of a wall. Openings include both windows and doors, which allow movement between inside and outside both visually and physically. Thiis-Evensen's differentiation of the window and the door is important for understanding the nuances of his discussion: "While the door is determined by what is outside, the window is the symbol of what is inside. Just as the eye, it expresses the interior's outlook over the exterior.." (ibid., 251). From this description one

senses a ballet implicit in the relationship between the interior and exterior spaces. The creation of a space, of an entry into it and the space's own motion of reaching outward—all of this seems to occur not in a linear fashion but at one time.

The Window

First, Thiis-Evensen reviews the window and its effect as an intermediary element in the struggle between the two forces of inside and outside. Following this he describes the door. He suggests four elements as those that constitute the window and affect its expression: the opening in the wall, the face in the opening, the frame around the opening, the space in front of the opening (ibid., 350a-d, 252). The opening, or the hole, affects inside-outside relationship through two of its basic aspects: form and profile. Form relates to the surface of the wall and is the exact shape of the opening which fall under one of three major types—vertical, horizontal or centralized—each with its own influences upon our motion (ibid., 351a-c, 253).

The profile involves the depth of the wall. Whereas the a straight profile appears as the result of a punching force from the outside, the diagonal profile emphasizes the experienced thickness of the wall and the wall itself seems to close down in the face of a force from without (ibid., fig. 355a-b). While the hole and profile involve physical changes to the wall on its face and its depth, the face refers to all of the elements that make the window. These include the frame and its divisions, and any transparent, translucent, opaque and skeletal systems that act as movable or fixed shutters. The particular location of the face—whether it is inside, in the middle, outside or lying on the outermost plane in the opening—will significantly affect the inside-outside relationship (ibid., fig. 360, 255).

The frame of the opening is that which "creates the setting for the window face, just as four walls surround and create a room" (ibid., 271). The sill, jambs and lintel are its components which are crucial in determining the expression of the window (ibid., 362a-d, 254).

The expression of the window is affected by the location of the frame relative to the depth of the wall. The expression is also affected if one or more elements of the frame are emphasized, and if the frame as a figure is incomplete.

The bay window or the space in front of the opening, derives from the frame's quality of defining the window's own space. Formal variations give the bay window varying dynamic qualities that can be grouped into four basic expressions (ibid., fig. 364a-d, 257). Through these expressions the bay window is seen "as an outward bulge in the wall" when it is continuous with the wall surface, or appears as to "burst through the wall" when it is clearly seen as a separate element that parts a skeletal or a massive wall to project outside. The bay window is an "overlapping space" when, from the outside, the bay window's individual space is seen as a complete figure. Finally the bay window is seen "attached to the wall...as an independent volume" (ibid.).

With the description of the elements of the window and their essential variations, Thiis-Evensen next asks what their expressive potentials are in terms of motion, weight and substance and, how these set up differentiated connections between inside and outside. The answer to these questions constitutes the understanding of the expression of the window.

He considers each of the four major window elements--The hole, face, frame and the bay window--by individually examining their role in the inside-outside dialectics. Thiis-Evensen's major arguments regarding the role of these window elements in window's overall expression will be summarized and presented below.

The Hole

The hole involves the form of the window and the profile. The hole, when it is deprived of the protective enclosure of the frame and, further, if it has a straight profile, reflects the triumph of the external force (ibid., fig. 365, 258). The profile of the wall and the frame are thus crucial in expressing the interior's expansion towards outside. To emphasize

the importance of the profile Thiiis-Evensen compares two basic types of profiles.

First, is the straight profile, which is a cut through the depth of the wall at right angles to it. The next is the diagonal, which can be interpreted as the 'beginning' of profile's articulation. The straight profile represents the absence of the expression of the profile in that it reveals the success of the external force in penetrating the interior. The meaning of the window as the expression of what is inside is weakened. The diagonal profile stores and communicates the interior's resistance through the walls. "the narrowing of the hole itself shows that the wall itself is about to close" (ibid., 259). The wall gains an additional weight and substance and the opening, contained within the perspective of the profile, appears to lie deeper (ibid., fig. 358., 256).

Two conditions affect the form of the window in its expression of the motion from within the space (ibid., fig. 367., 261). First, is the expression of motion innate to the particular form of the window itself. A vertical window, reflecting in form the image of an upright human and suggesting the possibility of entry, accentuates the "motion coming from the inside and thus strengthen contact with exterior space" (ibid.). The horizontal window, similar to the horizontal wall "encourages lateral motion..that cuts across the inside outside contact" (ibid.). In contrast to the flat wall in which neither the width nor the height dominate and a neutral motion impulse results, the centralized window emphasizes the powerful penetrating force from the interior. The horizontal window, through emphasizing guiding our motion along the wall, reduces horizontal communication through the depth of the wall and the contained space is isolated and protected.

Further, when the horizontal window becomes a wide opening, a sense of insecurity descends. The lintel begins to appear weak and the wall threatens to fall through. The vertical window, which can be an arched window affects different expressions corresponding to the nature of the arch. The pointed arch in which the vertical expression has reached its height seems to cut through the wall directly above itself. The domination of the vertical expression,

which is a motion along the wall, reduces the inside-outside dialogue. The rounded arch expresses balance in the way it supports the weight from above and simultaneously communicates the upward thrust. The half-circle of the arch intimates the qualities of the centralized window.

The second condition is the result of the window's expression of motion seen in relation to that of the wall of which it is a part. This condition yields the wall itself sinking or rising qualities and thereby affects our motion impulses (ibid., 374a-d, 263). However the expression of the window form and that of the wall which the window opens can mutually accent each other or weaken each other. To achieve a particular composite expression, one must know the natural expressions of both the wall and the window.

The Face

The second window element that Thiis-Evensen describes with reference to a window's expression of inside/outside dialectics is the face. The locations of the face relative to the depth of the wall are three: inside or in the middle of the opening, on the outermost face of the opening, and, outside the opening (ibid., fig. 381-382, 267; fig. 386, 269). Each of these affect our experience of the outward force of the interior and because of this the face of the opening can be seen to bound a wall differently from one that is contained by the external face of the wall. The face thus draws out or pulls in the interior space as it is shifted in relation to the wall's depth.

The exterior space dominates when the face assumes the deepest position in the opening. The interior space is detached and protected by the face which is like "an independent membrane" (ibid., 267). When the face is in the middle of the opening's depth, the forces from the two sides seem to be balanced. A certain degree of transparency is a prerequisite for this experience to be possible. The face lying on the external surface of the wall renders the entire volume of the contained space itself "inflated" (ibid.). Last the face as

an attached element on the wall lends it a sense of belonging to the exterior space and the wall is free to continue behind.

The Frame

The frame has the same edge defining and binding qualities that the walls, floor and roof, create in unison. It separates and protects the window from the surrounding wall. Thus the frame simultaneously has a separating and accenting effect. The frame "increases the importance of the interior space..." (ibid., 271). Thiis-Evensen points out three motifs that are essential variations of the frame. The frame can "lie within the opening, it can be attached to the wall around and outside the opening or become a part of a larger skeletal system in front of the wall" (ibid., 255; fig. 361, 256).

In the last variation, as a detached element, the expression of the frame becomes a "function of the separate space in front of the wall" (ibid., 271), and thus is not a part of the window's expression in mediating inside-outside forces. Therefore, Thiis-Evensen treats only the conditions when the frame is physically a part of the opening and describes the expression of the frame both when it is a complete figure and when one of its elements dominates.

The complete frame, Thiis-Evensen argues, "expresses a straight forward motion" (ibid., 273). The directionality of the interior's outward extension is horizontal and direct. Thiis-Evensen brings out the directional tendency of a complete frame in which the sill, jambs and the lintel share equal emphasis through an example. "A completely framed ground floor window indicates direct communication between the spectator and the interior. If, however, the same window is in a higher storey, it is as if the frame accentuates a communication above the head of the spectator and this no longer concerns him" (ibid., 273; fig. 394, 272).

The directionality of the outward extension of the space is affected by the dominance of either the sill or the lintel of the frame. The sill fosters a downward movement while the lintel draws the extending interior space upwards. Even in a complete frame, visual

dominance of one of these elements can aid a similar experience. Finally the directional qualities of the frame parts can animate the wall itself and lend it the character of rising and sinking (ibid., fig. 396a-g, 273-274).

The Bay Window

Thiis-Evensen concludes his description of the window's expression with the explication of the bay window which he regards as the "window as a space" (ibid., 257). The bay window, according to him, embodies the interior's desire to "appropriate external space both optically and in terms of light" (ibid., 277). The expression of the window is rooted in its struggle and the wall's resistance which the four basic variants of bay window express differently (ibid., fig. 364a-d, 257).

In the first variant, as an "outward bulge in the wall" the bay window is a part of the wall that resists expansion. The wall's plastic character is a result of this dynamic interaction. In the second variation the wall is breached "in the conflict between expansion and control" (ibid., 279) and the interior space, bounded by the face of the window, thrusts outside. The outward directional motion of the window and the horizontal direction of the wall which attempts to close the opening exist together and are unresolved.

The third variant of the bay window appears as a separate enclosure that overlaps the interior as well as exterior spaces. It "both breaks into the wall and springs out of it" (ibid.). The enclosed space has its own inner energy and seems to extend inside as well as outside. The fourth and the last variant of the bay window maintains the character of a separate entity attached to the wall. The wall therefore becomes free to continue behind the window and is not subjected to the outward force of the interior. Thiis-Evensen captures the stored energy of this variation through his words: "Expansion from the interior is caught and imprisoned by an exterior enclosure fastened to the wall" (ibid.).

THIIS-EVENSEN'S ARCHETYPAL ROOF

The final major section of Thiiis-Evesen's books examines the experiential qualities of the roof in order to understand the basic roof forms and their expressions. As with the other two elements, Thiiis-Evensen begins his interpretive study by enquiring what, in experiential terms, the roof does and how so. Whereas the themes of supporting, delimiting, and directing constantly surfaced in the explication of the wall and the floor, with the roof the existential experience of 'protection' assumes the primary importance: "the roof protects the interior space against the exterior space, a space which is both around and over it" (Thiiis-Evensen 1987, 301).

The roof embodies a powerful existential expression, since it is rooted in the non-material sky: the constant yet ever-changing phenomena of which all the earthly changes are functions. Through specific form variations, Thiiis-Evensen argues that the roof's relation to the sky can be expressed as one of resistance, acceptance or balance. Thiiis-Evensen interprets roof's expression in relation to the sky by asking whether it rises, sinks or is in balance and, therefore, neutral. The roof's form can also create motion expressions that are either inward or outward which in turn affects the sense of enclosure of the space. The roof's relation to the horizontal space is grounded in whether the interior space is centralized or directional (ibid., fig. 437a-e).

With this understanding of the essential structure of roof's relationship to the outside that is 'around' and 'above,' Thiiis-Evensen returns to history to explore primary shelter forms on which variations are based. He identifies five basic forms that convey "specific expressions with regard to motion weight and substance" (ibid., 303). These five forms are the dome, barrel vault, gable roof, shed roof and flat roof (ibid., fig. 441a-e, 302).

However, he observes that the natural expressions of these basic forms are dependent upon their context, specifically their relationship to the architecture of the walls upon which they rest. Thus, three conditions concerning the wall's architecture have to be considered in the interpretation of any roof form: (1) the spatial form of the wall, (2) the height of the walls,

and (3) the specific articulation of the wall. These three conditions can influence one's experience and perception by either enhancing or weakening the roof form's own expression. The underlying question to ask in the interpretation of the roof, in regard to the wall, is "whether the wall architecture is carried upward into the roof form or whether the roof architecture is drawn down along the walls" (ibid., 303).

The Dome

Thiis-Evensen then interprets the five roof forms individually first by describing their expression of motion and weight. First of these is the dome, whose relationship to the sky is characterized by representation, in miniature, of the sky itself. In terms of formal geometric qualities, Thiis-Evensen points out that, as a space, the dome manifests centrality, continuity and rising (ibid., 305; fig. 446, 305). While the ascension of the dome draws one's attention to the sky, its curving and continuous surface conveys "safety and protection, which again by its very nature is related to the conception of the dwelling, to the house itself" (ibid.).

Three variations of the dome's form illuminate the form's expressive potentials through varying and emphasizing different characteristics (ibid., fig. 449a-c, 307). The conical, or elliptical, dome is related to the pointed arch and emphasizes the rising effect which in turn delineates the dome as being the 'lightest'. The spherical dome, as is the semi-circular arch that it is related to, is balanced. Thiis-Evensen describes the expression of the spherical dome as one that is 'at rest': "Just as the semicircular arch, when read from bottom up, appears to rise but read from the top downwards seems to sink, the hemisphere too is a form that balances between up and down" (ibid., 313).

The flat dome struggles with either the weight that either pushes from above or pulls from below and resists the dome's rising. The tension is expressed by the dome and the walls that resist the downward pressure. When the dome's rising is challenged by the gravity, the dome's expression is one of springing upwards.

Towards the conclusion of the interpretation of the dome, Thiis-Evensen treats the variations of the three 'true dome forms'. These which he calls modified domes have as their reference the basic and pure dome forms considered earlier. His purpose here is to interpret roof forms that resemble domes. The dome's properties can manifest in one of the other major roof forms such as the gable, flat or vaulted roofs due to the specific articulation.

The first sub-group of modified domes is the hanging dome which, as the name suggests, has the reverse effect of the dome in that it threatens the space within on which it seems to sink. The modelled dome, the second sub-group deviates from the continuity in the dome's surfaces and plan. The pyramid in this sense can be interpreted as a modelled dome that rises above and marks a landscape (ibid., fig. 485., 325). The centrality and the vertical ascension of the dome remain but the dome's continuous surface around which space flows freely is replaced by the assertive and directional faces of the pyramid.

The Vault

As with the dome, the vault too is related to the arch. In geometric terms, whereas the dome is generated by the arch that is rotated about a point, the vault is formed by the extension of an arch along an axis (ibid., 487., 327). These motions at the 'birth' of the two forms are retained and expressed in the spaces the roof forms contain. Thus, the dome expresses and emphasizes the center of the space and the vault, its direction. Co-existing with the directional emphasis of the vault is the rising expression that is conveyed by the continuity of the arch.

The directional expression of the vault relates to the qualities of the cylinder of which the vault is a part. The cylinder readily opens at two ends and closes the sides. The walls that are statically and visually connected to the vault evokes this enclosure of the cylinder. Whereas these walls support as well as enclose, the end walls remain naturally open.

Again, in describing the basic variations of the vault and interpreting their expressive potentials, Thiis-Evensen considers the vault along with the supporting walls. He identifies

three spatial aspects as crucial determinants of the vault's specific expressions. First of these is proportions which concerns the height width and length of the space as well as whether its shape is rectangular or curved in plan (ibid., fig. 492-493a,b, 328-329). For example, the directional expression of the vault can be weakened if it were to span a wide space of short length. Likewise a high space too reduces the directional emphasis of the vault. In the former the transverse directionality suppresses the natural direction of the vault's motion and in the latter, the high walls create a strong sense of rising that takes over as the stronger direction of the space.

Next is the modelling of the space, or the form of the vault itself which can be flat, circular or pointed (ibid., fig. 493c). Variations to the vault's own expression are caused by the original properties of the arch that is repeated to describe the vault. For example, the strong directional connection between the two open ends of the vault is reduced by an emphasis of the vertical direction if the vault is of a pointed form. A similar weakening of the depth is caused by the flat arch form which, however, does this by evoking a sense of sinking.

The last factor that Thiis-Evensen describes as a determinant of the vault's expression is the specific articulation of the space. This involves the expressed connections between the vault and the wall and the surface characteristics.

Following this examination of the variations of the vault's expression that result out of changes to its elements, Thiis-Evensen treats the variations of the vault that arise out of combining vaults, specifically through intersecting.

He presents the groin vault as an archetypal representation of this variation (ibid., fig. 498., 331). In the groin vault two directional tendencies intersect and yield a dynamic quality to the space. The intersecting directions also begin to mark centers within the space and a variation of the dome can be seen in this.

The Gable Roof

If the dome signified the cosmos, the gable roof represents the human dwelling in its very essence. In the expression of the gable roof three directional tendencies are found acting together through which the roof is simultaneously open and closed: (1) a rising motion conveyed by the gable that rises towards the ridge, (2) a sinking motion along the eaves which portends to close the interior space and, (3) a directional motion expressed by the ridge and the open gable ends (ibid., fig. 502, 333). The three directional expressions create an experience of the roof being both open and closed. The ascending quality opens the space upwards, the directional quality horizontally outward while the sinking quality closes the interior space on the sides. These natural directional expressions of the gable form the basis that should be understood in order to interpret variations of this roof form.

Thiis-Evensen first reviews the three directional aspects of the gable roof and examines how, historically, these have been recognized and emphasized. The ascension of the roof is an upward and piercing motion that points to the sky and is 'heaven bound'. Thiis-Evensen cites the traditional decorations of the apex of the gable by different cultures as evidence of human recognition of the forms natural symbolism. The sinking expression of the gable roof on the other hand "lends a protective quality of the roof" (ibid., 335). The two sloping surfaces of the roof manifest their potential to complete their motion and entirely close off horizontal connection to the outside space along the sides. The directional quality of the roof is historically expressed through the emphasis of the gable facade as well as the ridge pole; the gable facade through being open and the ridge pole through being ornamental and expressive.

Thiis-Evensen next interprets the gable roof in regard to its directional expression as it is experienced inside as well as from the outside. In these interpretations Thiis-Evensen is concerned with the effect of the wall's architecture upon the expression of the gable roof. While the motion expression of a gable roof can be affected by varying the angles of the slopes, Thiis-Evensen limits his task to describing how "an almost identical form can convey

either a sinking, rising or directional character depending on its articulation or attachment to the walls" (ibid., 339). In this explication he further restricts himself to examples from Norwegian wooden architecture. He uses the interiors of log houses to show how the pattern of purlins, rafters and the ridge pole animate the surface they create, thereby imparting the whole roof a particular expression. The supporting log walls too are important in either emphasizing or diluting the effect.

The Gable Roof Interior: Sinking and Directional Motions

Thiis-Evensen offers two examples of interior spaces in which the roof expresses a 'sinking' quality. In the first, the effect arises from the support expression of the whole roof within the space (ibid., fig. 517, 339). The roof appears as whole element that is 'sliding downwards', as the brackets that support it seem 'merely attached to the surface of the wall' rather than be imbedded into it. The sinking expression dominates even when the rafters of the roof themselves create an air of ascension.

In the second example, a qualitatively different expression of sinking is created by the dominating purlins which, along with the supporting log walls, seem to "roll up into the ceiling and on down to the walls on the other side" (ibid., 341; fig. 519, 340). The sinking here emphasizes enclosure: "The continuity of this form destroys any impression of planar surfaces, thereby creating dynamics similar to that of the barrel vault" (ibid., 341). Although the walls and the roof are essentially non-continuous flat planes constructed out of linear elements of wood, it is through articulation alone that the continuity of the form is achieved.

The Gable Roof Interior: The Rising Motion

Again, Thiis-Evensen illustrates two kinds of rising expressions that can be internally created. The first is illustrated by a Norwegian rural house in which the roof's ascending quality is visualized by the rafters that rise with the slope of the roof (ibid., fig. 520, 340). Directionally

opposed to the rafters are the horizontally laid logs of the wall that enhance the roof's expression of ascension through contrast. The apex of the roof, Thiis-Evensen argues, intimates the possibility of opening to the space above and this is dependent on the ridge pole: "If a ridge pole is introduced it is as though the form closes - the rising effect is brought to a standstill while at the same time the length of the roof is emphasized" (ibid., 341). In another example, the ridge pole is replaced by two double beams that support each side of the roof: "Without the ridge pole the effect is as though the other two sets of beams 'move aside,' away from the ridge pole. This, in fact, is the case because the room originally had an open smoke vent in the roof" (ibid., 341; fig. 521, 340).

Next, Thiis-Evensen interprets the roof architecture of the Norwegian Stave churches in which the roof and the columns manifest a plastic continuity (ibid., fig. 523., 342). The sense of rising evoked here is one in which the whole space is drawn powerfully upwards. The experience here is unlike that inside the rural house in which the walls and the roof were distinct and separated elements.

The Gable Roof Exterior

Externally how does the gable roof convey different motion expressions? Thiis-Evensen, in addressing this question through his interpretation, treats the form of the roof first as an isolated element. Differences to the expression of the gable roof form achieved through variations to the basic form, he claims, will fall into one of three basic kinds: the pointed roof accentuates the rising, the shallow roof emphasizes spread and enclosure and the balanced roof prevents either one dominating while expressing both at the same time.

In terms of weight, the pointed roof is the 'lightest' the shallow roof 'heaviest' and the balanced roof "does not weigh upon its walls but sits upon them as an independent unit" (ibid., 347). Thus, there is a direct connection between the roof form's motion expression and the weight it conveys. Thiis-Evensen draws from history to illustrate how the inherent

expressiveness of the basic gable roof forms along with their practical advantages have been clearly understood and used by different cultures in their architecture.

Thiis-Evensen again returns to the question of articulation and how the roof is linked to the walls below since the roof's final expression is intimately related to these conditions. In this explication, he first treats the expression of the gable wall and the effect of the specific articulation on this. Through historic evidence, particularly drawing reference to the temples of antiquity, Thiis-Evensen argues that the triangular gable and the wall below are expressively differentiated surfaces. The 'tympanum' is the spiritual field that 'reaches towards the heavens' while the supporting surface below—upright columns of the temples—is the 'human zone' (ibid., 351). "Considered in such terms," Thiis-Evensen says, "collectively the main facade of the temple embodies and represents the three levels: earth, man, and the heavens" (ibid., 349). The earth in the case of the temple is represented by the 'stylobate.'

This interpretive basis becomes the reference in understanding the gable wall's expression as it derives from its relationship to the walls below. The gable relates to the wall below in two basic ways: it is either a distinct element that sits on the wall or it is integrated and continuous with the wall below. In the first—which Thiis-Evensen calls "the addition of the gable and wall"—the expressed weight is dependent upon the slope of the roof itself and the heaviness or lightness of the intervening surface between the gable and the wall below (ibid., fig. 532.1, 346). A steeply pitched roof accentuates rising and evokes lightness and a shallow roof weighs down on the wall. The expressed weight is also influenced by the mediating surface between the gable and the wall or the 'entablature' in classical terms (ibid., fig. 529, 531).

The variations of the gable as an integrated element of the wall can be grouped into three basic types (ibid., fig. 532.2a-c). Common to all three is the "disappearance... of the horizontal element in the triangle, so that the wall and the gable form one continuous surface right up to the ridge point" (ibid., 349). The first variation restricts the rising expression of the

gable of the wall through a frame that defines the edges. The second variation is a flat unbroken plane that invites a free treatment of the gable profile. Thiis-Evensen cites the Dutch urban dwelling as an example in which the gable announces the individual houses. The gables are no longer triangles but only reminiscent of the ascension of the triangular form. The third variation combines the properties of the other two in that a frame defines the two sloping edges on the top, thereby creating a delimiting resistance to the upward motion of the wall.

Elaborating on the third variation, Thiis-Evensen refers again to some examples from classical architecture that deviate from the norms by letting the wall surface below—the profane field—to penetrate and occupy the ‘sacred’ space of the gable’s triangle. Thiis-Evensen points out that in such examples the trespassed space above is usually occupied by the image of the ‘transcendent man’: the saint or the deified emperor. This interpretation further illuminates the expressive energies of the gable and the supporting wall below and the dynamism that results out of combining them.

Finally, Thiis-Evensen examines the relationship between the gable wall and the overhanging roof. Thus far, Thiis-Evensen was concerned with the surface of the gable wall as it expressed rising or sinking expressions through the dialectic interplay between the gable and the wall below. Now he treats the directional and enclosing motions of the roof which are varied and expressed by the relative positions of the supportive walls below (ibid., fig. 532.3a-c).

The directional emphasis of the roof is immediately apparent in the first variation in which the roof overhangs only on the gable end. The retracting gable walls accentuate the horizontal motion of the ridge pole and the whole roof. The protective quality of the gable roof is powerfully expressed through the second variation in which the roof overhangs on the sides. The sinking directionality of the gable roof is illuminated by this roof which "does not direct the interior space but ‘gathers it in’ as if under two outspread wings" (ibid., 353).

When the roof overhangs on all sides, which forms the third variation, a similar

gathering experience is evoked and the walls appear "drawn in" (ibid.). Common to the last two variations is the dynamic interplay between interior and exterior spaces created by the spreading of the roof.

Variations of the Gable Roof

Thiis-Evensen completes his interpretive enquiry of the gable roof form by describing the hip roof as a variation of the gable roof. He argues that distinctive experiential differences occur depending on whether the hip roof is a gambrel roof, a half-hip or, a full-hip. One commonality that connects these three is that they all approach a continuity of the surface (ibid., fig. 545a-c, 354). While the gambrel roof approaches the experiential qualities of the vault, the hip roof is a gable roof "with dome-like properties" (ibid., 355). The half-hip manifests the struggle between the directional strength of the gable and the closing effect of the hip. In the full hip the struggle no longer exists, as a dome-like centrality has been established by the hip. Here, one can draw a parallel to the pyramidal roof that Thiis-Evensen describes as a 'dome-like' roof earlier in his book.

In determining what influences the expression of the full-hip roof, Thiis-Evensen identifies three "sets of proportions" that are critical (ibid., 357). The horizontality and the weight of the roof becomes accentuated if the extent of the roof is spread out. The vertical expression of the roof is affected by the pitch of the roof and again affects the expressed weight and the protective sense of the roof. Last, the profile of the roof which may be either concave or convex are crucial determinants of the roof's final expression.

In addition to these three proportional aspects Thiis-Evensen points out the importance of the roof's relation to the walls below. The roof either appears heavy, sinking and protective or embodies light and open depending on whether the walls beneath are 'drawn in' by the roof or if they support the roof at its very edge. The sinking and rising expressions of the roof are also affected by the height of the walls in relation to the wall and the placement and

individual proportions of the openings located on these walls.

The Shed Roof

The shed roof is characterized and differentiated by the asymmetric space that it creates and protects, while the other four roof forms commonly manifest the impression of balance: "The dome enclosed on all four sides and the flat roof opened on all sides, whereas the barrel vault and the gable roof closed the sides equally while at the same time opening both ends" (ibid., 363).

As an incomplete form that appears to be a part of a gable roof, the shed roof embodies rising/sinking and open/closed at once through the asymmetric space: "lengthwise the diagonality will accent the roof's tension between rising and sinking...transversely the shed roof will both open and close, both rise towards the exterior space and sink towards the ground" (ibid.; fig. 562a-b). Thus, the experience evoked by the shed roof form is transitional which makes it particularly suitable as roof for entrances, vestibules that are intermediary between the inside and outside.

The fragmented or incomplete nature of the shed roof is revealed by the fact that it is used as an element that is repeated and combined to create architectural compositions. Thiis-Evensen describes two essential ways in which these compositions are achieved : (1) the shed roofs are placed opening towards one another or, (2) opening away from one another (ibid., fig. 569a-d, 365; fig. 574, 367). In the first case, the two spaces under the two shed roofs potentially belong together despite intervening distance as well as size differences. The composition can appear split if they move away from each other, and the intermediary volumes that physically connect the two spaces eventually determine the overall expression. Whereas it is the inside space that is held in tension in these examples, with the second variation where the shed roofs open away from one another, it is the exterior space that is affected. The shed roofs themselves convey a sense of individuality and the space between has

the potential to either open or close. This variation says Thiis-Evensen, "creates a modelled exterior space" (ibid.). In the example that he uses to illustrate this type of a condition the sinking lower sides of the roof enclose an intimate courtyard space.

The Flat Roof

In practical terms, flat roof reflects the absence of heavy snow or rain fall and typically "belongs to the countries of sunny south" (ibid., 371). Aside from practical pre-requisites the flat roof, which Thiis-Evensen compares to the raised floor, gains an expressiveness only through the life that inhabits it. The inhabitation of the floor is a prerequisite for the floor to assert itself; a condition that Thiis-Evensen contrasts with the 'self-sufficient' identities of the other roof forms. One reason for this is the horizontal nature of the flat roof that precludes the roof any sense of an objective presence.

Horizontality dominates the character of the flat roof: "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 lid" (ibid.). The flat roof invites an expression of inhabitation which, Thiis-Evensen argues, has been historically recognized. The active sculptural elements on the roof of Le Corbusier's L'Unite' d'Habitation in Marseilles that Thiis-Evensen cites as an example to ground his description in the real world of architecture: "By means of large plastically formed chimneys, 'houses', and benches the roof becomes active as a center for residents and children but also as a conclusion for the entire building below" (ibid.; fig. 577, 370).

Internally, Thiis-Evensen describes three aspects as active determinants of the flat roof's eventual expression. Articulation concerns the surface of the flat roof as it becomes animated by supporting and construction elements such as beams and coffers (ibid., fig. 579, 372). These, depending on their own specific properties, impart the flat roof directional or rising qualities. Thiis-Evensen next describes transition--the specific way in which the roof and

the walls are connected--as it is expressed by variations of colors on the wall and roof surfaces (ibid., fig. 582a-d, 374). Specifically, he treats surface articulation through varying the brightness of colors. The third and the last determinant of flat roof's expression within a space is the modelling of the form itself--which refers to the plastic treatment of the ceiling inside to create the desired motion expression or counter a potential sinking tendency.

CHAPTER V:

INTERPRETING THIIIS-EVENSEN'S THEMES IN THE YOSHIMURA HOUSE

DESCRIPTION OF THE YOSHIMURA HOUSE

The first example that will be interpreted using the frame work of Thiis-Evensen's archetypes is the Yoshimura-Tei house which is located in Japan's Kinki district between Nara and Osaka. Yoshimura-Tei, commonly referred to as the Yoshimura house, can be regarded as a quintessential representation of the Minka Tradition, since the house combines the simplicity of farmhouse construction and the sophisticated interiors and gardens of upper classes (Carver 1984, 110). The Yoshimura house constantly draws attention as an important example in literature and studies of the Minka dwellings of Japan. This bears testimony to the architectural significance of Yoshimura house.

The Yoshimura house "preserves the vitality and solidity of the best of the Minka tradition" (Nishi and Hozumi 1985, 82). Since the Yoshimura house at once manifests the essential characteristics of the traditional Minka dwellings and the elaborate spatial arrangements and sophistication of the dwellings of higher class people, it is regarded as an "aristocratic farm house" (Carver 1984, 110).

The Yoshimura house derives its name from the Yoshimura family which has owned and occupied the house since the end of the 16th century. The earliest historic information available about the Yoshimura family is a document from 1591 that lists an early patriarch of this family, Yoshimura Shichiemon, as one of the elders, or "head men" of the village. Heads of the Yoshimura family succeeded as the headmen of the Shimaizumi village until 1868, when the Tokugawa government was overthrown.

The history of the house itself is unclear, as is the case with most Minka dwellings that have undergone destructions by fire, reconstructions and additions. The Yoshimura house is believed to have been burnt and rebuilt following a political strife in 1615, and parts of the house are said to date even after this. A formal sitting room to the west of the main house,

and a store room and oven area to the east of the house date to after 1798.

In the next section the house will be described physically. The description will then be followed by an interpretation of the house in terms of Thiis-Evensen's three archetypes and will ask what this interpretation says about wood as a building material.

General layout

As figure 1 indicates the overall layout of the Yoshimura house is narrow and long, and the two longer sides face north and south. The southern face of the house can be regarded as the front of the house, since it is through this side that the house is formally entered. Two formally-articulated entrances are found on this southern face (fig. 2). One door opens to the earth-floored section of the house. This door was used by most visitors as well as the family. The second door leads to the entry alcove and was a formal entry for special guests and the Samurai. In addition to these two major entries, one can also enter the house via the elevated veranda through the sliding walls. The treatment of entrances as distinctive features, a characteristic generally uncommon to the traditional Japanese dwelling, reflects the aristocratic standing of the family that frequently entertained Samurai and other distinguished guests.

Internally, as seen in the plan (fig. 3), the Yoshimura house is differentiated into two distinctive areas. In a manner common to most Minka dwellings, this differentiation is articulated especially through the architecture of the floor. An earth-floored cooking and working space and a store room occupies the eastern end of the house at level with the exterior ground. West of this area, on a raised wooden floor covered with tatami mats, are the living, dining, sleeping and guest rooms. The sizes of these rooms modularly relate to the tatami mats that are approximately six feet long and three feet wide. In line with the general tradition, the rooms of the Yoshimura house are free flowing and flexible, both functionally and spatially. The activities of living, dining, sleeping, and accommodating guests tend not to be determined by particular rooms and the rooms are multi-functional.

An interior wooden-floored veranda that is in level with the general living quarters of the house projects into the earth-floored portion and helps create a smooth transition between the two floors. A maid's room is literally hung over the south western corner of the interior veranda and is accessed by a ladder of half-moon shaped rungs cut into the wall (fig. 4 and 5). This is a curious feature of the Yoshimura house since a family of this social status would be expected to have a large number of servants, accommodated away from the main living quarters.

Running contiguous to the rooms on the elevated portion of the house, both on the northern and southern sides of the house, are veranda spaces that mediate interior and exterior. These verandas create a sense of environmental depth (fig. 6). At the far western end of the house are a servant's room and a toilet, accessible through the external verandas. On the outside, to the north, lies a garden with a spring and a human-made hill.

Materials and Construction

One similarity that binds the wide and diverse range of expressions of traditional Japanese architecture together into an identifiable whole is the commonality of wood as the primary building material. The Yoshimura house displays wood as the predominant material in all of its elements.

The floors of the Yoshimura house are of wooden boards supported on a wooden framework. The framework is raised above the ground by wooden posts that rest upon carefully chosen stones embedded in the earth. Inside, the floors are covered with straw mats that differentiate between the more protected interior spaces and the transitional spaces of the verandas (fig. 7).

A variety of wooden-wall types are found between the spaces of the vertical posts. Along the periphery of the house, adjoining the veranda spaces, are white plastered walls with a base frame of wood or bamboo held between the vertical posts and covered with earth or

clay (fig. 8). A second major wall type is the sliding wall found adjoining the external veranda spaces, as well as inside the house as partitions between rooms. A wooden frame work filled in with translucent paper constitutes the sliding wall which slides on floor tracks (fig. 7).

In terms of form and materials, the roof of the Yoshimura house responds to the linear nature of the house. The basic roof form is a gable which is continuously varied along the length of the house in height and the pitch of the slope, thereby expressing the different parts of the house. At the eastern end of the house where the house appears to "end," the roof is both gabled and hipped (fig. 9). The variation of the roof form is also accompanied by a change in roof materials. While the eastern and western ends of the house have clay tile roofs, the main portion of the house has a thatched roof. Inside the earth-floored work space the roof structure is supported by rough-hewn beams over which rests a bamboo ceiling.

In the interpretation of the Yoshimura house, the central objective is to identify those archetypal motifs which manifest strongly through the floors, walls, and roofs of the building. The specific interest here is to be sensitive to how wood as a building material interplays with these archetypes and thereby strengthens or weakens them. First, following the order of Thiis-Evensen, the floor of the Yoshimura house will be interpreted with the intention of identifying the major floor motifs.

INTERPRETATION OF YOSHIMURA'S FLOORS

First, the floors of Yoshimura house will be considered in relation to Thiiis-Evensen's three central themes of support, delimitation, and direction. The interpretive base of these explications arises from Thiiis-Evensen's three existential concepts of motion, weight, and substance.

Yoshimura's Floors and the Supporting Theme

How do the wooden floors of Yoshimura house provide support and what unique experiential qualities come forth by virtue of the materials of the house, especially its wooden components? Also, in the particular manner that floors of the Yoshimura house offer support, what expressions can be found with regard to the existential expressions of weight and substance?

Exploring the specific qualities of the floors of the Yoshimura house in relation to the theme of support requires that one examines the nature of inside/outside relationship that the floor creates. For the floor as an archetypal element, Thiiis-Evensen believes, this constitutes primarily the vertical relationship of the floor to the ground below, since the exterior that is "around" and "above" can be excluded by walls and roof.

In moving from outside to inside of the Yoshimura house, one experiences a gradually changing sense of openness to a sense of closure. The floor of the Yoshimura house plays a direct role in effecting the varying degrees of outside/inside experience—both through its vertical relation with the ground below and through its horizontal relation to the surrounding exterior.

In the veranda, one finds floors of exposed wooden boards placed wide apart in some places that, as a result, seem to "belong more to the outside," and tighter and closer together in other areas that thereby seem "drawn close to the inside of the house" (fig. 10). These experiences result from the p^{er} ground below, specifically in terms

of how open or closed it is to the ground below. In parts of the veranda floor, the floor boards are placed with wide crevices between them creating a form of "open floor."

Corresponding to the description of Thiis-Evensen's open floor motif, this floor extends interior space downward thereby affecting the sense of enclosure of the space. However, unlike Thiis-Evensen's open floor motifs which are purely visual effect yielded by floor's reflective qualities, the floor here has physical openings. Upon this open floor a subtle sense of falling through is induced and the experience of being supported by the floor enters one's conscious awareness. One tends to feel uncomfortable about remaining on such a space and correspondingly, the floor communicates its less frequent inhabitation and usage.

In the connection from the dwelling to the toilet, the architecture of the floor expresses the gradual movement from inside to outside (fig. 10). Whereas the floor surface closest to the interior of the house appears solid and closed to the outside (the ground below), the floor surface farthest away—an uneven floor of bamboo appearing like a bridge of rope that one would cross swiftly—seems the least permanent and most open to the outside. The two ends of the experiential range is mediated by a floor surface that is of open planks of wood through which one can see the ground below.

In terms of the supporting theme, one finds the motif of detached floor expressed by the floors of the Yoshimura house both internally and externally. Thiis-Evensen argues that, experientially, the detached floor fosters a sense of separation from the ground below: "one finds oneself on a level divorced from the ground...." (Thiis-Evensen 1987, 57). Thiis-Evensen shows two essential ways in which floors manifest the qualities of detached floors: either the floor rises physically above the ground, or the floor lies lightly on the ground. He offers Villa Savoye by Le Corbusier and the Farnsworth House by Mies Van Der Rohe as examples of floor that is physically raised. For the second type, he considers carpeted floors. He says that the carpet is a detached floor that lies on the ground as a layer and is perceived as an impermanent layer.

While the Villa Savoye rises above the ground and allows the surrounding landscape to flow uninterrupted, the Farnsworth house extends the internal space outward. In the former the floor is a detached yet well contained element within a precise geometric form, and in the latter the floor is an independent entity that extends the interior of the house into the landscape. Thiis-Evensen interprets the Farnsworth house to represent the "modern way of life," in which the detached floor clearly represents "the modern dynamic and optimistic hope for the future." The Villa Savoye to Thiis-Evensen represents Corbusier's attempt to span freedom and order by detaching and elevating the floor--the level of human dwelling--and at once containing it within a precise form (ibid., 58).

Notwithstanding the differences that set these two houses apart, particularly with reference to interior/exterior relationships, Thiis-Evensen brings forth the fundamental qualities of freedom and separation that arise out of floor's detachment. The two illustrative examples hint at an immense range of expression that is possible with the expressive potentials of the detached floor.

Thiis-Evensen shows that the experiential qualities of the detached floor is yielded by the material that constructs the floor. In other words, the weight and substance of the floor. Thus, a constructed floor lying in level with the ground appears attached and heavy if it is of stone and light and detached if it is of grass. Also important in this regard, he argues, is the surface pattern and boundary form of the floor. Rendered geometric and ordered the same stone floor mentioned above becomes a stone carpet.

In approaching the Yoshimura house from the southern side, where all three entrances to the house are located, the veranda floor appears almost as an object detached from the ground resting lightly on rounded stones (fig.11). The surrounding ground is allowed to continue underneath similar to the Farnsworth house discussed earlier, until the ground is stopped and by the walls of the house. Yet unlike the Farnsworth house, the landscape is not an "abstract phenomenon in the distance" (ibid., 57). Instead, there is a gentle interaction in the

way the vertical posts of the floor make contact with the ground and there is a continuity between the constructed floor and natural ground on which the floor sits. Rounded stones bear the floor of the house, communicate hardness and security, and mediate the meeting of the vertical posts and the ground. A sense of lightness results, since the posts merely sit on the stones and do not penetrate them.

The interior veranda floor on the other hand—closing the space underneath—seems heavier than the veranda floors facing the outside, but still retains a character of a detached floor (fig. 4). This is because the floor is perceived as a free standing object, lying upon the more permanent ground. With the qualitative description of the carpeted floor that Thiis-Evensen offers, one can interpret the wooden floor of the internal veranda as a "wooden carpet."

Thiis-Evensen describes the carpet as a "plane in contact with the floor... a separate layer that covers another floor underneath" (ibid., 59). Two essential aspects of the carpet are its tactile quality and its experience of something removable. He says, "...the carpet is soft, it may be rolled and put away, whereas the floor 'remains.' Also, the carpet yields beneath our feet and is compliant when we walk on it. It is friendly and sheltering because it both gives and receives" (ibid.).

Experientially, both in terms of the tactile quality and sense of impermanence, the wooden floor of the internal veranda is "carpet like." One can imagine the experience of walking bare-foot upon this floor. The warmth of wood in contrast to the surrounding cold earth, and the movement of the floor as one walks on it are experiences that can be related to the experience of the carpet.

Finally, the carpeted floor as a motif of detached floor is found in the internal rooms of the Yoshimura house. The carpets define the "warm" and secure inside from the "cold" outside. Thiis-Evensen discusses the Nordic usage of carpet the which in a context of a severely cold environment signified the deepest inside of the house (ibid., 61). The carpet's

role in defining and creating a warm inside is illustrated by the guest and bed room floors of the Yoshimura house. Yet again, one finds that the architecture of the floor delineates the interior distinct from the exterior while articulating a gradual transition from one to the other.

The description based on the supporting theme suggests that, in terms of the existential expression of weight, one finds a wide range of lightness expressed by the floors of the Yoshimura house. The heaviest floor within this range of lightness is found in the most enclosed space of the house—the internal veranda—which corresponds to the introverted nature of the activities of this space—cooking and working. Horizontally, the space is relatively closed to the outside and there is a desire to only allow a great deal of light into the space.

In terms of substance, the second existential expression that Thiis-Evensen associates with the theme of support, once again a wide range of expression is found, but within the general qualities of softness and warmth. While the nature of wood itself yields these qualities, the range of expression is aided by the surface manipulation and construction. Thus, of the exposed wooden floors of this house, the last stretch of floor to the toilet is the most coarse, and the firm floor of the internal veranda is the smoothest. Even with foot wear on, one still is aware of the potential experience of these differences of the floor surface. Yet again there is a correspondence between the nature of the particular space and the expression of the floor.

Yoshimura's Floor and the Directional Theme

A quality of the wooden floor that one becomes aware of by looking at the floors of the Yoshimura house is how the wooden floor of the veranda attains a strong sense of direction just as it becomes more open to the ground below. Returning again to the veranda leading to the toilet, one finds that as the floor boards allow more gaps between themselves—opening one to the ground below—the floor's surface attains a pronounced sense of direction (fig. 10). One starts to recognize how the floor with its reduced sense of support also has an accompanying feeling of transience and encourages one to move quickly. The space of this

floor can be interpreted as that which the house extends and offers to the outside.

On the other hand the directional quality of the floor is weakened, as the floor boards of wood draw close together to create a more solid plane that excludes the outside more strongly. This space, expressing more "insideness" seems to be "pulled inside" by the house. Considering the directional qualities of Yoshimura's floors in relation to the overall layout of the house is important because the house itself, long and rectilinear in plan, manifests strong directional tendencies (fig. 10). The floors with the strongest directionality are those of the verandas which parallel the linearity of the house. This is the primary direction of movement within and around the house connecting the different rooms. The direction of the veranda floors also emphasizes the connection of the house with the toilet and the servant's room.

The wooden floors of the living, dining and sleeping spaces are covered with tatami mats clearly delineating them as the of protected interior of the house. The vertical relationship to the ground within these rooms becomes subtle as the mats hide the directionality of the wooden floor and soften the sound of human feet, absorbing the sounds and thereby excluding the outside more emphatically (fig. 7). Particularly noteworthy with regard to the issue of the floor's directionality is the pattern in which the tatami mats are laid on the ground. Instead of emphasizing any one direction, the mats are placed such that the rooms define themselves as centralized and contained. The delimitation and the containing of the interior spaces through the articulation of the floor is crucial, particularly since movable walls foster fluid spatial relationships.

Yoshimura's Floors and the Delimiting Theme

How does the floor as an element act to delimit and define the Yoshimura house? And, how does it act to extend the inside out while drawing the outside in? The role of the floor in this regard is greatly significant because Yoshimura house embodies the characteristic spatial aspect of many Minka dwellings in which the internal spaces of the houses fluidly

intermingles with the outside, aided by sliding and lattice walls.

The floor of the Yoshimura house delimits and sets up an interaction between the interior and exterior spaces by rising above the ground and manifesting strong directional qualities, both of which are in harmony with the overall form of the house.

The raised verandas on the periphery of the house delimit and define the edge of the house without any ambiguity. The strong edge of the floor that parallels the directionality of the floor at once talks about the detachment of the level of dwelling from the ground. The geometric surface quality, the detachment and elevation from the ground and the delimitation of the space of the house are dialectically related and they can be seen to occur in one instance.

The description of floors of the Yoshimura house suggests that the motifs of open, detached and directional floors are manifested strongly. Whereas the detached and the directional motifs are found in the verandas of the Yoshimura house clarifying the descriptions of Thiis-Evensen, the motif of open floor allows additional interpretations to that of Thiis-Evensen, warranting elaboration.

The open floor for Thiis-Evensen implies a purely visual sense of downward opening of space which is possible through four means classified as archetypes: transparency, mirroring, reflection and layering. In the Yoshimura house, the main entrance to the living quarters adjoining the earthen-floored cooking and working space has a reflective wooden floor (fig. 4). Since it is a fairly narrow space that is well enclosed, the downward as well as outward expansion of space that Thiis-Evensen describes as qualities of this floor, comes forth only subtly. However, upon the water like plane of this floor, the vertical structural posts and the dark frames of the walls reflect and appear lighter. A sense of verticality is created by the floor, thus countering the over-bearing heaviness of the roughly hewn beams traversing the space overhead.

The ephemeral sense of lightness is dramatized by the floating manner in which the

whole wooden floor itself is raised and supported. The entire floor sits lightly upon rounded stones, and the earthen-floor continues under the floor and the entire house. Seeing this and walking on the floor, one can actually experience what is represented in an abstract drawing such as the section of house. There is a direct connection between what can be experientially known about the house and its inner structure—the way it is constructed.

The motif of open floor is also found in the parts of the veranda where wide crevices between floor boards open one literally to the ground below. This is somewhat similar to the transparent floor that Thiis-Evensen describes. Although the floors here come nowhere close to the pronounced sensation of falling that Thiis-Evensen's hypothetical floor of glass would induce, one still finds intimations of such an experience. One feels the pull of the ground below and becomes aware, even if unconsciously, of the importance of feeling supported. As a result such a floor inspires quick movement across the space. Again, in terms of wooden floors, the movement becomes guided since directional quality of the floor and degree of openness to the ground below are natural concomitants of each other.

The important aspect that is revealed by this thematically organized examination of floor are dialectic relationships among the three floor themes. Here, in terms of wood, one becomes aware of such interconnections between the detachment of the wooden floor from the ground below and the simultaneous sense of delimitation that accompanies the detachment. Similarly, as the wooden floor becomes more open to the outside a strong sense of directionality accompanies this openness.

INTERPRETATION OF YOSHIMURA'S WALLS

How can the walls of Yoshimura be interpreted using Thiiis-Evensen's explication of wall archetypes as the conceptual basis? The focal interest of this interpretation is the specific inside/outside dialectics that are sustained by the walls of the Yoshimura house and the underlying existential qualities of motion, weight and substance. Specifically, the interpretation aims to understand the qualities of wood that create and sustain the specific strength relationship between the interior and exterior of the Yoshimura house through its walls. The interpretation will follow Thiiis-Evensen's order and consider the three wall themes of breadth, height and depth.

Similar to Thiiis-Evensen's interpretation, the interpretation of the breadth and height themes will be limited in comparison to the depth theme which he claims encompasses the other two. The interpretation of breadth and height themes of the walls of the Yoshimura house will help to understand the formal aspects of the house. The underlying effect of the material itself will be revealed more through explicating the walls of Yoshimura house with regard to the depth theme.

Yoshimura's Walls and the Breadth Theme

As mentioned earlier, the Yoshimura house is typically approached from the south and entered through one of its three main entrances on the southern face of the house. The southern wall can be seen to represent the 'public face of the house' which creates the first impressions. Visual documentation of the Yoshimura house by different authors repeatedly emphasis the southern wall which constitutes the front of the house that both the visitors and the residents used every day. The southern face of the house can be seen and interpreted as one wall even though it is made up of many wall planes that constantly step in and out across the entire length of the house.

The expansive southern wall seems to reveal different wall motifs as one moves from

far to near and from one end to the other. However, the southern wall as a whole can be seen and interpreted in two ways. From a distance, seen entirely, the southern face manifests what Thiis-Evensen calls the side motif--specifically the left motif (fig. 2). The formal entrance created for special guests and the samurai lie to the left of the facade creating this motif and thereby delineating the right as the stronger corner. One receives intimations of a localized centrum within the space lying to the right of the entrance. A further accentuation of the right corner is given by the store-room which has a solid and enclosing wall and also projects out. The projection, however, is just enough to strengthen the right corner of the house and the entire southern wall is still read as one continuous wall that expands horizontally (fig. 12).

Closer to the house, as seen in figure 6, the dynamic horizontal expansion of the wall is still felt. The wall extends powerfully to the left and right of the approaching path. However, the projecting formal entrance terminates the extension of the wall to the left, and attention is drawn to the middle of the wall. The wall perceived from this distance manifests the breadth motif, which according to Thiis-Evensen yields an inviting and open character through allowing the middle to dominate. The qualities of the breadth motif are brought forth by the recessed middle portion within which is located the entrance leading to the earth floored work area. Lying to the right and left respectively are the store room and the elevated veranda. The middle portion of the wall appears not as a recessed area but as an open colonnade. The continuous eave of the roof unifies the two projecting sides with the middle portion and creates this sense of openness.

Another aspect that supports the perception of the middle section of the wall as an opening is the trellised wall that sits on the outer edge of the raised veranda (fig. 8). The trellised wall with closely placed wooden bars defines the left edge of the opening. Without this the middle field's appearance of an opening would have been weakened. The open and public character is also enhanced by the wide and strongly defined doorway emphasized by a heavy lintel.

Interpreting the front wall further, one can also recognize the right motif which manifests in an indirect and a subtle way. Although the entrance itself is located approximately in the center of the wall's expanse, the intimations of the right motif is created and supported by a number of factors (fig. 6). First, there is the oblique angle at which the path leads to the house which precludes the perception of the facade's symmetry and the roughly central location of the door. The expanse of the wall to the left of the entrance is made more visible than the wall surface lying to the right of the entrance.

Second, there is the configuration of the roof above which influences the effect of the wall. The highest roof over the major living spaces of the house terminates a little to the right over this entrance to the earth-floored area. Thus, the roof and gathered energy of the path draw our attention to the door and, the storeroom that lies to the right of it starts to appear as a peripheral, attached space and goes almost unnoticed. In other words it becomes the background in one's perception as one moves inward.

Thus, in terms of the breadth theme one experiences qualities of different motifs manifested by the front wall of the Yoshimura house. The perceived character of the front wall, with regard to its breadth, keeps changing as one moves from outside to the inside and across its length.

Yoshimura's Walls and the Height Theme

In terms of the height theme, the expansive southern wall of the Yoshimura house, which creates the major expression of the house, once again involves many motifs as one moves from one end to the other. Again, the facade is rendered complex by walls that alternately step in and out under a continuous and unifying eave. Additionally, the wall surface is richly varied in articulation which expresses a variety of rising and sinking qualities.

Yet, seen as a whole, the southern wall manifests one motif more clearly than any other: the sinking motif. The sinking motif comes forth, not through the wall's architecture

alone, but through the interplay of the wall with the dominating roof above which portends to close the horizontal movement into the space. The roof itself has replaced the upper field of the wall and pushes the middle field of the wall downward. The middle field, in turn, resisting this force as well as the pull of the gravity, rises vertically and allows free entry into the house. Thus, the space above is closed and contained by the roof and the horizontal spaces of the interior and exterior of the house freely flow into each other.

One of Thiis-Evensen's examples that illustrate the sinking motif embodies similar characteristics as the Yoshimura house although it is stylistically unrelated: the artist's house in Oslo by G.Blackstad and H. Munthe-Kaas (fig. 13). In this building, a sinking expression is imparted by the over-proportioned upper field of the wall that presses down the middle field. The middle field appears triumphant in the end, even though it is much smaller, since it meets this downward pressure with little effort and remains open. Horizontally the inside and outside spaces stay connected with very little physical intervention.

An image of Norwegian folk architecture that Thiis-Evensen employs as another example to illustrate the sinking motif is a building constructed entirely of wood (fig. 14). In this example too, a similar sinking expression is seen. However, in contrast to the Oslo example, the downward pressure of the upper field relates not to the experienced weight of the wall but to the vertical directionality expressed on the surface of the wooden wall. The thickness of the wall itself is actually revealed as is the wall's composite nature. The top field is perceived as an attached layer that threatens to move downward and close the horizontal connection between spaces. However the absence of columns to meet the motion of the wall does not cause undue anxiety since the upper field of the wall expresses an inherent lightness.

The front wall of the Yoshimura house embodies the dual motion impressions of rising and sinking that Thiis-Evensen describes as a dynamic expression of the wall which derives out of wall's height properties. However, it is the upward motion from below that is dominantly expressed by the front wall of the Yoshimura house. Here, it is only the open

middle field that prevails in the struggle among the three spatial fields. The ease with which the middle field dominates the other two spatial fields is embodied in the wooden columns that energetically spring upwards (fig. 11). The vertical supports of wood are not even pushed into the earth by the downward force. It is enough for them to merely be perched upon small isolated pieces of stone to resist the downward push. Thiis-Evensen contends that "a free-standing wall must be tied into the ground in order to stand" (ibid., 131). This to him "refers to the downward reality" of gravity that "draws all things to itself". The southern wall of the Yoshimura house, seen as a whole, appears not to be tied to the ground. There is a character of lightness and freedom manifested by the upright wooden supports which rhythmically express verticality. The same sense of detachment from the ground is revealed by the continuous plane of the wall on the inner edge of the veranda. This wall sits on a continuous bed of rounded stones in a manner reminiscent of the way the internal veranda sits on the earthen-floored space.

Although in purely technical terms, the stones on which the wooden posts rest are part of the wall system and its foundation, experientially the wall still expresses a sense of independence and is 'not tied into the ground'. The manner in which the wooden supports rest reflect wood's rejection of the moisture and insects of the ground and 'raises the human dwelling with itself'.

The openness of the middle field also imparts the front face of the Yoshimura house, the qualities of the open motif. Seen this way the wall reflects, again, the triumph of the middle field that has overcome the pressures of the lower and upper fields, opening the house for one to easily enter along the ground.

Yoshimura's Walls and the Depth Theme

As mentioned earlier in page-, the depth theme, according to Thiis-Evensen, is the most critical of the three wall themes since it is all encompassing. Any wall's breadth and

height expressions are dependent on its major form, construction system, the openings on its surface and finally the specific articulation that is expressed by all these manipulations. With the guidance of this frame work, the depth characteristics of the walls of the Yoshimura house will be explicated, enquiring in particular the nature of wood in this regard.

Major Forms of Yoshimura's Walls.

In terms of major forms, the south wall of the Yoshimura house first involve the horizontal and the vertical forms. These two themes relate to the height and breadth aspects of the wall. The entire southern face represents the horizontal form which according to Thiis-Evensen is essentially an enclosing wall that delimits the interior space and expresses "weight against the ground" (ibid., 143). He further argues that the motion impulse of a wall that expands horizontally, which is 'to follow along,' will strengthen the wall's sense of closure. The south wall of Yoshimura, although horizontal in form, is still not rejecting and enclosing. The skeletal system of the wall's construction, which will be treated in detail later, imparts to this front wall of the Yoshimura an open and light character.

The horizontality of the wall does not create a "compressed and compact first impression" (ibid.). On the other hand, the interior of the house that is protected under a powerful and dominating roof is allowed to sustain a persisting dialogue with the exterior spaces through the open nature of the horizontal wall. Although the openness of the south wall—including the sliding shoji panels on the inner edge of the veranda—suggest possible entry almost anywhere along the length of the house, the elevated veranda discourages indiscriminate entry. Free-standing steps communicate proper places for inward movement. The horizontal southern wall is thus allowed to retain its natural impulse of lateral movement.

The qualities of the horizontal wall, as Thiis-Evensen describes them, are brought forth by the two external walls of the store-room at the south-eastern corner of the house. On the eastern side one finds a massive enclosing wall that is molded in character and has no

openings (fig. 9). Above, the roof is gabled as well as hipped. The hipped portion seems to intervene and strengthen the horizontal expression of the wall which would have been lost if the gable surmounted it directly. The formal gateway at the left end invites inward movement and the wall itself, as Thiis-Evensen would describe, urges one 'to move along'. The adjoining compound wall further enhances the horizontal expression.

Inside the premises, the southern wall of the store-room again manifests the qualities of the horizontal wall. On entering through the gate, one is guided by this wall to the 'open middle' that was described earlier in the breadth motif. The wall's own form is complemented by the horizontal expression of the windows (fig. 12). Another aspect that furthers the expression of the wall is the base of exposed wooden boards. In over-all form the base is horizontal and is in harmony with the motion impulses of the wall. The verticality of the wooden boards, however, lends a sense of lightness to the wall. The boards also draw one's attention upward and then inward through the windows above.

In comparison to the eastern wall that is all rejecting, here one finds the wall to be a little more receptive to the outside. First, the three windows support this experience. Although covered with horizontal louvers that close visual connection to the inside, the windows nevertheless appear as 'weakened' portions of the wall that seems mostly massive and plastic.

The entire wall itself appears to be an infilled skeleton. On the two ends are vertical posts and the wall has a base of vertical wooden boards. The plastered wall surface fills in this spatial boundary and the whole wall is imparted a composite character which in turn evokes a sense that the wall is 'light'.

The formal entrance with a gable end, which was seen earlier to mark the left motif in terms of the breadth theme, expresses the nature of the vertical wall. As a clearly recognizable entry, it gathers the horizontally spreading movements to itself as the center, and expresses ascension through its gable (fig. 2). Further, being open and light, it promotes a direct communication of inside/outside spaces. Whereas the openness of the horizontal south wall

suggests possible entry all along its length it is this vertical wall that announces the formal entry of the house. In this sense, apart from the elevated floor, the verticality of this entrance which draws motion inward also supports the natural motion impulses of the horizontal wall. In other words, although the horizontal front wall of the Yoshimura house appears open and permeable, one can not penetrate the spaces within anywhere as one pleases. The horizontal wall guides one to appropriate places of entry.

In exploring the depth of Yoshimura's walls, one notes that flat wall is represented and both concavity and convexity of wall forms are not present. The reason for this is that all of Yoshimura's walls, whether they are skeletal or massive, are of wood. The innate linearity of wood precludes the curved wall forms.

The linear nature of wood as a fundamental quality is constantly revealed by Yoshimura's walls at many different levels. Externally, on the south face are strongly expressed linear elements of the walls that create an experience of depth which mediates the forces from the outside. It is as though many planes composed of linear elements are overlaid on one another, thus creating a transition from outside to inside; each layer is much too open to act alone and protect the interior spaces. In this sense, interpretively, the veranda space itself constitutes the 'experiential depth' of the protective walls of the Yoshimura house (fig. 8).

The inherent linearity of wood and the innate flatness of wooden walls of the Yoshimura house preclude the wall's motion tendencies of 'leaning toward' or 'leaning away'. The walls express a strong sense of uprightness with the same spirit as the vertical elements that act as posts or constitute the frames.

Building Systems of the Yoshimura's Walls

Inside and out, Yoshimura's walls reveal the skeletal, infill and layer systems of wall construction. The skeleton system, a variation of which are the other two systems, according to Thiis-Evensen, is the "very symbol of open space" (ibid., 163). In the skeletal wall, the

expressions of delimiting and supporting are differentiated. The frame bears the weight of the roof and resists the pull of the ground as the spatial boundary is liberated for a varied articulation of inside-outside dialectics. Thiis-Evensen suggests wood as the archetypal material of the skeletal system and its variations which possess the sense of dynamism and growth of a tree.

Again, the linearity of wood determines the main forms of the skeleton walls of the Yoshimura house. Wood rejects curvilinear forms and only rectilinear frames are found in the Yoshimura house. On the southern face of the Yoshimura house, in plane with the inner edge of the veranda, is an infill wall (fig. 6 and 12). The surface of this wall is animated by changing patterns described by the supporting frame work. The frame work itself mimics the open colonnade in front of it and expresses the desire to be open to the outside. The infill layer exhibits the interior's resistance to this desire and its effort to enclose and protect space.

Thus the forces, as Thiis-Evensen claims of the infill walls in general, are in balance. The interior spaces that adjoin the veranda spaces have sliding panels of shoji screen which can create, close, or shift openings. These panels appear similar to the other immobile and solid infill surfaces that adjoin. One can imagine the sense of dynamism and drama that will be caused by the entire wall that seems composed of infill surfaces that are potentially mobile. The linear elements of the frame, slender and full of 'speed,' impart to the entire wall a sense of tautness. The wall does not draw its strength to protect and contain the interior space from its weight. Instead, it is yielded this strength by the frame which stretches the wall surface as a tense fabric between the corners. Even when an opening has to occur on the surface, the frame is still allowed to continue and complete as a figure. The frame thus maintains its expressive directionality.

The flat and stretched out expression of the Yoshimura's southern wall can be attributed to the molded and plastic quality of the infill surface. The infill surfaces, treated independently, are representative of the massive system of wall construction manifesting

specifically the properties of the molded wall. Compared to the masonry wall, Thiis-Evensen's second category of massive walls, the molded wall through its abstract surface qualities appears lighter and more penetrable. The lack of any recognizable unit of building block on the surface of the smooth molded wall, Thiis-Evensen argues, is the reason for this experience: "A smooth wall has no immediate connection with our world of everyday experience. It tells nothing of its weight or size. As a reference for scale it eludes us. Optically it extends upwards and outward, which means its surface effect is greater than the depth and weight effect" (ibid., 169).

The smooth infill surfaces correspond to these descriptions in that it evokes the experience of something thin, tense and fabric like. However, these surfaces are contained within a frame-work of linear pieces of wood which themselves are recognizable in terms of every day experience (fig. 17). The southern wall interpreted in terms of the depth theme is a skeleton on a skeleton: a motif of the layered wall. More specifically, it is a skeleton on an infill wall (fig. 8). The layering in depth, the superimposition of one open wall upon another in the direction of one's inward movement, creates a gradual transition from outside to inside, a pattern which is particularly critical in the context of the light and open walls of the Yoshimura house. While the frame on the outer edge of the veranda is wider and more open, it gets denser and more closely spaced on the inside edge of the veranda. Here, one can see a parallel to Thiis-Evensen's interpretation of the use of this motif in classical and Gothic architecture as it relates to the public scale on the outside and the private on the inside. In movement inward it is as though the frames themselves that seek to draw closer together, close the intervening spaces and protect the inside. Such an expression can also be interpreted from the trellised wall on the veranda in which the linear elements of the frame themselves, 'drawing close to each other,' begin to describe a surface.

This process of interpenetration when complete, creates a wall that physically fuses the two existential wall functions of supporting and delimiting. Examples of this in a variety of

forms can be seen in the earth-floored interior space of the Yoshimura house (fig. 15). Here, linear planks of wood create enclosing and solid planes that form the door, a free standing partition and a portion of one of the internal walls of the store room. While the doors and the partition appear composite and layered and thereby display their lightness explicitly, the internal wall of the store room closes the space within emphatically.

Reflecting upon the wooden frame-work of the infill walls of Yoshimura, and paying attention to the surface pattern, one recognizes the dominance of the vertical elements of the frame. In contrast to the horizontals that are interrupted and discontinued, the verticals continue all the way from the ground to the roof for obvious reasons of support. The verticals stand erect, support the roof and themselves. The horizontals connect the verticals, make them rigid and help the verticals support themselves. Externally, on the southern side, it is this vertical expression that manifests the wall's effort and success in resisting the downward push which was discussed in the sinking motif of the height theme. Again, it is this verticality that is articulated to mark places of entry into the house thereby restraining the natural motion impulses of the horizontal wall.

The emphasis of the vertical can be seen in the internal earth-floored space too. Here, the sense of support becomes even more explicit as the heavy and trunk like beams rest directly over the vertical supports. Within this space, a sense of ascension is fostered by the vertical emphasis of the frame's expression which opens the space upward. The expressed frame of the infill wall itself opens the space outward. The implicit sense of being open to the outside combined with minimal physical openings creates a space that is highly suitable for its activities. Here one can focus on one's work without being distracted by actual connections with the outside while still being within a protective and generous space.

The description of the infill walls of the Yoshimura house offers a corroboration of an aspect of the massive wall that Thiis-Evensen claims to be essential. Furthermore, it becomes possible to appreciate the dialectic relationship between the massive and the skeleton walls.

Thiis-Evensen says that through simultaneously supporting and delimiting "the massive wall lends weight to the spatial boundary itself and thereby closes the space" (ibid., 163). The dominant verticals in the frames of the infill walls of Yoshimura bespeak their ability to support and define the corners of the space. One can also interpretively recognize their potential to delimit space by multiplying and closing the intervening spaces between them. In doing so the properties of a massive wall of undifferentiated supporting and delimiting functions will be created.

The expression of the verticals of the infill wall on the south side of Yoshimura are rendered subtly and restrained by the overall patterns created (fig. 8). In fact, a dual reading of the verticals become possible. They appear on the one hand subordinate and experientially recognizable elements of an infill wall and on the other, upright columns. The alternating expression of the vertical supports relate to a number of reasons that can be described in relation to each expression.

The vertical elements of the infill wall on the southern side of Yoshimura are approximately the same size as the horizontals that connect them. They appear as a part of a larger pattern in which their individuality is subordinated. Next, their slender proportions and close placement make them seem a part of a reinforced wall that begins to hint at an isotropic character. Particularly within the earth-floored work space the ominous roof above seems to require substantial support of a massive wall. Considered as individual columns each vertical post seems weak since they are, first of all, dimensionally small. Additionally, if one agrees with Thiis-Evensen's argument, it is their quadratic shape that 'weakens' them.

The rectangular shape of the verticals aids one's experience of these as 'non-columns.' Thiis-Evensen argues that the rectangular column, in comparison to the circular column which is a "closed form, concentrated inwardly upon itself", appears weaker since it is of a composite form and "its surfaces and corners can 'come apart'" (ibid., 199). Although the circular column appears slimmer it communicates more strength than the quadratic column through its form

which is concentrated around a point. The difference in shape of the column also influences its expression of independence as well as one's motion tendencies: "The round column is an independent individual, in all parts equal and self contained. The square column ... has sides leading along its center and corners that point away from this center. When it is rectangular an inequality arises; the longer side dominates the shorter" (ibid., 215).

Whereas the 'individuality' of the circular column seems to reject anything being joined to it, the rectangular column seems inherently receptive. "The pillar seems as a part of the wall itself, or rather 'what remains of the wall'"(ibid.). The slender quadratic verticals, just as the horizontals, are 'imbedded' into the depth of the wall to which they belong (fig. 17).

In terms of influencing our motion then, Thiis-Evensen argues that the circular column allows us to freely move around it while the rectangular column "leads us beside it in a definitive direction" (ibid., 215). Seen in relation to this explication, the expressed frame on the infill wall on the southern side of Yoshimura primarily directs one to move along, since its depth in its wall is minimally exposed. The secondary directionality of this wall concerns the depth of the wall and the expressed degree of openness. The frame is powerfully expressed through its strong contrast to the light wall surfaces and the southern face—the front of the house—gains an appropriate 'public' character.

The perception of the verticals of the infill wall as being columns derives from the vertical supports on the outer edge of the house which they seem to mimic. The verticals on the outer edge of the house express themselves as columns without any ambiguity.

Openings in Yoshimura's Walls

Thiis-Evensen definition of 'opening' is important to be restated here since the discussion proceeds from it: "An opening in a wall occurs when the wall's structural system is interrupted either in the form of a hole in a plane wall, or a change of rhythm in a skeletal wall ...the precondition is that the wall acts as the ground, while the openings stand as

figures" (ibid., 251).

In his interpretation of openings Thiis-Evensen first considers the window and then the door. The interpretation of the openings of Yoshimura house will be in the reverse order with the intention to follow the general pattern of other preceding interpretations which have moved from the outside to the inside. In the Yoshimura house a wide range of openings are seen. While some stand out as distinct figures on the background of the wall, others blur this distinction both visually and functionally. An example of the latter is the sliding walls that can be seen as both walls as well as door ways. Furthermore they can be alternately read as both windows and doors. Another reason that suggests the elaborate treatment of the doors of the Yoshimura house is that most openings of the house allow physical passage between the spaces.

Yoshimura's Doors

Understood as clearly marked entrances that invite and physically allow passage from the outside to the inside, two openings on the front of the Yoshimura house express themselves distinctly as doors. One is the door leading to the earth-floored work space towards the eastern end of the southern wall's expanse. The other is the formal entrance towards the western end (fig. 2).

In terms of the Thiis-Evensen's door casing motifs, the southern wall of the Yoshimura house expresses the frame, niche, shelter, and the path motifs. The frame motif is represented by the formal entrance that was seen to mark the left motif of the breadth theme of the wall's expression and the vertical wall in terms of the major wall forms. The gabled frame pulls away from the house and seems to move towards one who is approaching to enter. The accentuation that is created by the frame is furthered by the enclosing sides which separate the space of the entrance and mark its importance (fig. 6). The outward movement of this entrance, which appears as advancing motion to greet the visitor, claims and withholds a

certain part of the outside space. The door on the eastern end invites entry through an expression that contrasts that of the framed entrance. Here, one is powerfully drawn in by the door through the external space of the path to penetrate the house. The path motif is clearly seen in this instance. The articulate and expressive image of the door here completes the purposeful motion of the path. The qualities of the shelter and niche motifs also manifest themselves if one treats the door in its complete context including the surrounding walls and the roof. The doorway is set on the infill wall in line with the inner edge of the veranda. The depth of the storeroom wall and that of the veranda on either side of the doorway receive and embrace external space. This external space, which is also under the protective roof of the veranda, completes the offering gesture of the entrance. The created shelter, which is in the realm of the entrance space is "a visualization of an anteroom giving a three dimensional preparation to the act of entry" (ibid., 295) (fig. 12).

A brief reference back to one wall form can be made here to show the interconnections between the motifs of different wall themes even though this deviates from the interpretation of the doors. This will reveal the innate potential of many motifs to overlap in one situation. In the specific context of the Yoshimura house identifying specific motifs, their recurrence, and overlaps aids a deep understanding and critical appreciation of the architecture.

Reflecting upon the entrance to the earth-floored area as a whole in terms of the major wall forms, a subtle expression of the concave wall can be recognized (fig. 12). The projections of the store room and the veranda on either side of the door create the qualities that Thiis-Evensen identifies as those of the concave wall: "embracing and receiving, and the yielding and the pliant" (ibid., 149).

In his description of the door-casing motifs, at the outset, Thiis-Evensen points out that since these motifs concern the architecture of the space around the door, they are "variations of the wall's own archetypes" (ibid., 285). The preceding interpretation of the door both in terms of the door-casing motifs as well as wall motifs help to clarify this.

The elements that essentially constitute the window is common to the door also: the opening in the wall that is characterized by its form and profile, the face, the frame and the space in front of the opening. The preceding interpretation based on the wall-casing, the space in front of the opening was considered. Inquiries can now be made regarding the other three elements.

In form, that almost approaches a square, the door opening into the earth-floored space evokes the centralized form (fig. 8). In contrast to the vertical and horizontal forms that promote inside-outside relations through motion expressions that are along the direction of the wall, the centralized form opening accentuates penetrating connection between the spaces within and without. Specifically the form conveys a "penetrating motion from the interior" (ibid., 261). In this sense the door balances the powerful thrust of the approaching path with a resisting force that expands outward.

The door assumes a generous and portly character through its size. The definitive expression of this door, also deriving from its direct articulation and figure-ground legibility, makes it appear as the most important entry into the house. This is saved, however, since it lies on the same level as the outside. An elevated internal living space is expressed by the veranda which expands outward. The formal Samurai entry expresses access to this raised 'insides' of the house and retains primacy. Expressing rising through its gable, this entry emphasizes the inside-outside connection.

Interpreting these two doors in relation to the element of profile leads one to treat the element of frame at the same time. This is because, in both cases, the profile of the opening is defined by the frame itself which lies at the outer edge of the wall. The wall's own depth is therefore hidden from sight. Thus profile and frame can be interpreted simultaneously.

In the case of the door to the work space, the profile is implied as being straight. The two side posts of the frame which is not differentiated from the vertical of the skeletal wall convey this impression. However the resulting expression does not convey the triumph of the

penetrating force from the outside. Instead, an outward and upward motion expression is evoked by the door's frame. First, the frame's placement which is in the outer-most plane of the wall conveys the expanding force of the inside. Second, the heavy lintel enhances the sense of rising that is already created by the dominant vertical. Finally the face of the door, in line with the wall surface, appears as a continuation of the same layer of the wall that encloses space.

The articulated expression of the lintel, the only curvilinear element on the entire southern facade, over this doorway deserves attention. Interpreted in terms of the frame this lintel is a straight beam which, visually, is "most prone to deflection" (ibid., 225). The upward curves at each end of the lintel visually correct the implicit bending in the middle of the wide opening. The curve however expresses resistance to forces only in the vertical direction and does not concern the depth of the wall. In that sense, it continues the expression of linearity found in other elements that comprise the wall. Finally, with respect to the frame of this door, the act of entry is accentuated by the threshold at the bottom of the door which completes the frame. The threshold, a linear and conspicuous element rests on a bed of individual stones expressing the same lack of affinity for the earth that can be interpretively seen throughout the house. One has to cross over this to enter the inside space and cannot 'slip' from one space into another (fig. 8).

Yoshimura's windows.

From the given images of the Yoshimura house, specifically from the outside, very few openings directly appear to be windows. Furthermore, in the Yoshimura house, windows understood as openings that connect the interior back to the exterior spaces without allowing the physical passage of a door are but few. Three horizontal windows on the plastered white walls of a store room are convey the strongest image (fig. 12). Another window allowing light into the raised wooden floored internal veranda can be perceived as a window from the

outside (fig. 6 and 17).

This window, in the vicinity of the trellised wall of vertical wooden bars, appears on the one hand as an interruption, a figure on the wall. On the other hand it is woven into the frame work of the infill wall and appears as a place where additional enclosure is aided. The legibility of its elements as frame, face and opening is reduced in this. However, from the inside, there is no ambiguity as light floods through the translucent paper face of the window's shutter which slides along the width of the window (fig. 5).

The store room window expresses an expanding interior through the frame that is set on the outer face of the wall. The lintel of the window enhances the motion impulses of its horizontal form as well as that of the wall. The face of the window comprising of horizontal wooden louvers furthers the same expression of the window.

Common to all the windows is the strong expression of a geometric order through linear elements of wood. This expression becomes even more emphasized on the inside as the geometric patterns on the translucent window faces are silhouetted by the natural light that enters the space (fig. 15). In the interior's contact with the outside, it is this geometric order that mediates. Even within an interior that begins to mimic a natural space the geometric order intervenes and announces the true nature of the interior as a human creation.

INTERPRETATION OF YOSHIMURA'S ROOF

As with interpretive inquiries of the walls and floors of the Yoshimura house, here, too, the central focus is the innate aspects of wood as it contributes to the specific expressions of the roof. The interpretation of Yoshimura's roof will be grounded in Thiis-Evensen's explications of the roof's existential qualities. A broad framework of the interpretation is defined by asking how the roof of the Yoshimura house protects the interior spaces from the exterior spaces above and around it. In terms of material the question is, how wood as the basic roofing material creates the distinct experience of the Yoshimura house.

In terms of the five shelter forms that Thiis-Evensen develops, the gable and the shed roofs are most clearly recognized on the outside of the Yoshimura house. Inside, as will be shown later, the properties of the flat roof, and the barrel vault can be interpreted to varying degrees. First, the interpretation--which will proceed from the outside to inside--will be based on Thiis-Evensen's description of the gable and the shed roof. Next, internally the motifs of flat roof, and barrel vault will be interpreted.

The overall roof form of the Yoshimura house is strongly rooted in the spatial layout of the house, which is narrow and long (fig. 1). The rectilinear form of the house displays the potential of internal spaces to be open to the outside through the two longer sides. It is towards these longer and potentially open sides that the gable roof sinks and threatens to close the interior spaces (fig. 6). The dialectic relationship between the sinking roof and the resisting wall that rises to sustain the horizontal spatial connection gives both the roof and the supporting walls each their dynamic expressiveness. In other words, both the wall and the roof appear to be rising and sinking at the same time as each one is engaged in countering and resisting the 'will' of the other as well as the forces of nature.

The sinking motion of the roof and the desire of the internal spaces to be open through the longer sides of the roof seem to contradict each other. But when one considers the nature of the skeletal wooden wall which is inherently open and light, the importance of a

protective and enclosing roof becomes apparent.

Yoshimura's Gable Motifs

To interpret the roof of the Yoshimura house it is necessary to describe the roof's relationship to the sky above and the horizontal space around. For the gable roof, these relationships are determined by the three directional tendencies that Thiis-Evensen contends are natural to any gable roof: rising, sinking and directional aspects. The gable roof of the Yoshimura house expresses a horizontal directionality more powerfully than rising or sinking aspects. "The directional quality of the gable roof," says Thiis-Evensen, "becomes apparent, on the one hand by the frequent emphasis on the gable facade itself and, on the other hand, by the importance given to the ridge pole and the roof ridge" (1987, 335).

However, in the roof of Yoshimura, neither the gable wall nor the ridge pole are expressive elements in conveying the directional emphasis of the roof. The dominance of the directional aspect of the roof is rooted in the long and narrow spatial form of the Yoshimura house itself. Apart from the overall spatial form, the directional expression of the roof is also supported by the edge of the roof which is a continuous and unifying eave. An almost uninterrupted supplementary roof over the veranda space on the southern side mediates the variations in the main roof and describes this eave (fig. 2).

The overall spatial form is so strong that the directional expression of the roof dominates even though the roof is not a single continuous gable in which a long ridge pole would connect the two gable ends. The roof can be seen as either a composition of gable roofs that combines their directionalities or, as a single entity that is made complex through variations and articulations. In the latter sense, facing the house from the south, one can see that the roof is interrupted along its length by changes to both its pitch and rise, as well as to the surface articulation. Thus varied, the roof begins to express differentiated areas within the house.

The roof over the middle portion of the house is the most steeply pitched, highest and the most expansive (fig. 6). There is an additional cover of thatch over the part of the roof that seems to offer further protection to the space that it covers. Along with the walls and the formal entrance below, this part of the roof seems to express the most important spaces of the house. The spaces herein are the central and the most protected 'insides' of the house. This roof can be understood as the 'main roof' of the house. The tile roof to the east of this main roof is more shallow, lower, and is rhythmically stepped down and finally terminated with a half-hip (fig. 16). This shallow roof to the east helps to expose the gable end of the 'main roof,' which rises more steeply as though to announce the main living areas of the house. The gable end of the main roof, however, is minimally exposed and nearly all solid except for a small latticed opening close to the apex (fig. 9). To the west, the thatched roof is lower and also set back inside. Thus, the roofs on to the sides convey a sense of being subordinate to the 'main roof'.

The raised roof in the middle, through its steep pitch, conveys an ascending sense. At the same time, being the highest roof, a subtle centralizing effect is created which counters the excessive directional motion that might threaten the security of the protected internal spaces. The closed gable end also restrains the directional motion of the roof. On the eastern end of the house, the roof, gabled and hipped, closes the internal space further resisting the directional motion of the gable. Whereas traditionally the ridge is articulated to emphasize the directional quality of the roof, a reverse of this occurs in the Yoshimura house. Here, the ridge is articulated by a gentle upward curve at the two ends which visually 'slow' the directional motion of the roof. Instead of stressing the horizontal line of the ridge that would appear to be in a swift motion along the ground, the articulation here imparts to the ridge an airy sense of upward motion.

The ridge of the tiled roof over the kitchen/work-space is also articulated to balance the directional expression of the roof. The articulation here involves interruptions to the

continuity of the ridge. The ridge is broken along its length by varying the height.

Additionally, a roof vent that is covered with a miniature gable begins to mark a point in the roof. Finally, the gable roof is terminated by a half-hip. The entire composition achieved through the variations of this roof towards the eastern end of the house directs our attention 'back to the main gable roof' over the main spaces of the house (fig. 16).

The specific articulation expressed on the surface of the roof is an important determinant of the roof's rising and sinking qualities. Externally, on Yoshimura's roof, two roofing materials are seen. The roof over the living, guest and bed rooms has a layer of thatch over the tile roof, while the store room and the earth-floored cooking and working spaces are roofed only with clay tiles. The rows of tiles describe vertical lines which evoke a sense of ascension and lightness. The verticality of the wooden supports below strengthen this sense of rising. The surface expression of the tiled roof is another aspect that resists the powerful directional thrust of the roof; particularly the narrow and long supplementary veranda roof which accentuated the horizontal aspect in the overall expression of the roof.

The Shed Roof Motif

The roof over the veranda space appears, on the one hand, to be a part of the overall gable form stressing the directional motion of the roof through an uninterrupted eave. On the other hand, with a more shallow slope than rest of the roof surfaces, it appears as a supplementary roof that projects from underneath the eaves of the main roof of the house protects a transitional space. The interpretation of the shed form is also aided by the distinct edges of the main roofs that lie above and over the shed roof (fig. 16).

From the outside, the vertical lines described by the tiles of the roof give the roof an expression of rising. Standing on the raised veranda, on the other hand, the roof extending over the supports appears to be sinking towards the ground intending to close the internal spaces (fig. 10 and 11). The exposed purlins are important in accentuating this expression.

Thus, as Thiis-Evensen claims of any shed roof, the roof here appears as a part of the gable roof and simultaneously rises and sinks. However, contrary to Thiis-Evensen description, the roof here opens on the side towards which it sinks and the walls surface closes the side towards which the roof rises. Again, it is the context of extremely light and open walls that make this reversal meaningful. The shed roof here sinks towards the exterior space and rises towards the interior space which is primarily protected by the ponderous roof above.

Except for the underside of the veranda space where the wooden rafters are exposed, externally, the roof does not reveal the wooden structure that lies underneath. As one moves from the outside to the inside, at the eaves, the wooden roof reveals itself as an element that is built up by many successive layers of materials, wood lying underneath that as the supporting frame. Only after moving inside into the earth-floored work space, wood as the primary material of the roof becomes apparent (fig. 4 and 15).

Overhead, within this space, is the heavy wooden structure of the roof which also supports a ceiling made of bamboo. Rough-hewn beams above, which recall the tree trunks that they were wrought from, contrast and accentuate the geometric and precise character of the skeletal wall's frame-work below. The roof framing is not all rough-hewn; the purlins, much smaller than the beams, are as straight and rectangular as the frame elements of the walls are.

Internally, the roof over the earth-floored space can be seen to manifest qualities of two different roof forms. The complex articulation of the roof framing and the modelling of the ceiling help create this overlay of expressions. First, the expressive tendencies of the vault form can be recognized, in particular the continuous rising surface. Within the earth-floored space the roof seems as a shallow and incomplete vault which is interrupted by a wall on one side. It is as though the vault extends over the wall and completes itself.

As one faces the main entrance to the living quarters from the earth floored area, the roof rises gently from the wall on the right (fig. 4). The ascending motion is arrested by a

roughly hewn and ponderous wooden beam. From here the ceiling, until it meets the wall on the left side, is essentially flat. Another heavy wooden beam, placed approximately the same distance from the left wall as the first one is from the right wall regains a sense of symmetry to the space. The contrast between the sloping and flat surfaces, minimal to start with, is rendered even lesser by the beam that covers it from beneath.

The dense overlay of frames and bamboo reeds that describe the ceiling, all reduce the contrast between the flat and the sloped surfaces. Overall, the roof begins to manifest the properties of a rising surface that is continuous, even if very subtly. The roof on the left seems to extend over the wall, upon which it rests, to slope downward again. It is as though the roof is an extremely shallow vault that sinks and in that process spreads outward. Only the two main beams seriously disturb the continuity of the 'vault,' but at the same time they emphasize the directional aspect of the vault which also parallels that of the entire roof of the house, seen from the outside.

The vault here is unlike the archetypal vault that Thiis-Evensen describes in that only an overall impression of continuous surface is created. The underside of the roof is not a neutral surface but one that is actually animated by the framework that creates the support. Roughly hewn beams and precisely wrought rafters crisscross each other and create geometric patterns that manifest the same rational order that pervades the walls and the floor as well. In the walls the geometric patterns, lying in plane with the flat walls, take precedence. In the roof, which involves successive layers of built-up materials, the geometry of the structure becomes a less visible aspect as the depth in the articulation of the roof draws one's attention upwards.

Next, the roof over this space can be seen to represent an articulated and modelled flat roof, since the shallow and potentially sinking curve of the roof approaches the flat surface more than it does the vault. The three aspects of articulation, transition and, the modelling of the space must all be considered in this interpretation.

A strong sense of direction is created by the two main beams both because of their size and because of the fact that they become visually emphasized by lying underneath all the other layers that comprise the roof (fig. 4 and 15). The directional emphasis, however, is undermined by the overall form of the space itself which is narrow in the direction of these beams and longer in the opposite direction. Further the 'upward depth' in the frame work of the roof draws away from the dominance of the directional expression and imparts to the roof a sense of lightness. Thus, the roof, in which the motion tendencies are balanced through merging different directional expressions, directs space equally on all sides towards the supporting and enclosing walls. The roof, notwithstanding its own weight expressed by the ponderous and dark members, 'opens' outward as well as upward.

As a flat form, the articulation of the roof's transition to the walls below must be described to interpret how this condition affects the overall expression. Here, in the earth-floored space, neither the wall's architecture is carried up into the roof nor is the roof's architecture brought down. Although the wall and the roof, being variations of the skeletal system of construction, manifest similarities, each element seems independent of the other. Although the wall's support is explicit, the roof appears to be 'lid' that sits over the walls and even projects beyond.

The extension of the roof over these side walls will also be retained in one's memory as one moves between the transitional veranda spaces outside and the interior of the house. Another aspect that aids the overall expression is the surface contrast between the light and flat walls below and the dark and layered roof above. The infill walls only imply openings and depth through a contrast between the dark frames and the light wall surfaces. The ceiling above, like the roof itself, reveals many layers of materials that lie in different planes creating actual depths in their overlaps. Thus the surfaces of the roof above and the walls around are made distinct through articulation. The walls and the roof therefore 'meet' at their edges but do not 'merge.'

Finally the articulation of the exact form of the flat roof, its modelling, should be explored. Since this involves the plastic treatment of the form of the roof, a reference back to the interpretation of this roof as a vault is necessary. The slope on one side lightens the flat roof which then seems to rise. This rising expression is also related to the rafters of the roof as well as the contrasting wall which accentuates its own upward motion through expression of the vertical posts.

How can one understand the wooden roof of the Yoshimura house from the preceding interpretation of the wooden walls which also involved a skeleton method of construction? Unlike the supporting walls below that are also skeletally constructed, Yoshimura's roof involves layering in which frames and in-fill materials rest on each other. The built-up character of the roof is revealed, first of all, at the eave which one crosses to enter. This is also made apparent on the outside by the thick layer of thatch of the 'main roof' which supersedes the tiled surface beneath. Moving from the peripheral to the more protected interior spaces, one can observe that the layers increase. Thus a gradation of interior spaces is evoked by the varying roof thicknesses.

Another aspect that relates to the layering is the roof's flatness. The less layered supplementary roof of the veranda on the southern facade mimics not only the wall's ordered and rhythmic surface but also by flatness. This character pervades all the tiled roof areas which also appear thinner. On the other hand, the roof over the main house is composed of many more protective layers, and the wooden structure is buried underneath the surface which intimates possible undulations. Internally, the massive beams make explicit that they bear not only the refined bamboo ceiling, but also the whole roof. The internal ceiling, the shape of which differs from the rising roof on the outside, conveys another layer of protection.

Similar to the walls, the roof also involves linear elements of wood. Whereas the walls express a clear geometric order through precise elements and well resolved connections the roof's expressed order is more complex. Unlike the walls, the roof involves wooden members

that are varied in size and shape. The lowermost supporting elements reflect the reality of gravity and are the biggest. They are also the most unfinished and appear simply as denuded tree trunks. Succeeding layers are smaller and more precisely shaped.

In coming together, these elements of the roof both rest upon each other as well as interpenetrate. Whereas variations of layering in the walls represent manipulated interior/exterior relationships, in the roof layering represents the human desire to provide protection from the tremendous forces of the sky. The ponderous beams at once exhibit the strength of the roof in shielding the interior as well as threaten its security and remind us of the roof's importance in creating a human dwelling.

CHAPTER VI:

ARCHETYPAL ELEMENTS OF WOOD

Common to all the floor, wall and roof interpretations of the Yoshimura house is the underlying interest to understand the essential aspects of wood as a building material. Through these interpretations, based on the conceptual framework of Thiiis-Evensen's archetypes, first of all it becomes possible to appreciate the form of the Yoshimura house in a new light. Specifically, the form of the house is interpreted and appreciated with reference to the constant phenomenon in all architecture: "the inside/outside relationship" (Thiiis-Evensen 1987, 9).

Through the process of interpreting the elements of the house in terms of archetypes and motifs, it becomes possible to ground the immediate impressions in both the existential expressions of the forms as well as commonly shared bodily experiences. In regard to the floor, walls, and roof, the identified motifs were seen to be in close harmony with the overall intentions of the house. Further, there was also a rich overlap of motifs of the three elements in many parts of the house.

The individual consideration of each element dialectically involves the other two elements and, therefore, the whole space. The recurring links among the three elements helps to show that Thiiis-Evensen's method of explicating does not fragment the wholeness of the building. Instead, his method offers a rigorous way of illuminating the essential nature of each archetypal element as it acts with the others. Though it will be not provided here, the interpretation of Yoshimura's form through this method of applying archetypes could also become an interpretive basis with which other significant examples of Japanese architecture can be understood.

Since the interpretations constantly involved the three existential aspects of motion, weight, and substance, an implied or explicit reference to the material, wood, is also suggested. The descriptions show that the reference to wood is inescapable even if it were not

the explicit focus of the study. In Thiiis-Evensen's own interpretations, materials are also either implied or discussed explicitly. Thus, he suggests stone as the archetypal material of the massive wall and wood as that of the skeletal wall (ibid., 163, 164).

As the next step towards understanding the nature of wood as a material, the question to ask is: what general properties of wood can be understood through this exercise? To answer this, following again Thiiis-Evensen's general structure, the nature of wood can first be described as it is manifested by the elements of floor, wall, and roof. In this, references to other significant examples of Japanese wooden architecture can be helpful to illustrate certain aspects that are manifested in a more illuminating, stronger or different way. Following the individual treatment of the wooden floor, walls and roof, the final step in this process is to identify those central qualities of wood which persist in all the three elements.

THE ARCHETYPAL WOODEN FLOOR

Reflecting upon the preceding interpretation of the Yoshimura house, what can be inferred as qualities fundamental to a floor of wood? This is the primary question that will be the basis for this broader summation on the nature of the wooden floor. In this, apart from the Yoshimura house, references will also be made to other important examples of Japanese architecture which manifest some of the archetypes more powerfully or in a different way.

Of the three archetypal elements, it is the floor with which the human being is constantly in touch. In a literal sense, the contact with the floor is real. The support of the floor is a prerequisite for people to stand erect and confront the world. It is the constructed floor, again, that is liable to make physical contact with the natural ground below. The wooden floor, demonstrating its recognition of this pre-existing condition and its natural disaffection for the moisture of the earth, always rises above the ground. In this pattern, the floor traps a space beneath that resonates through the wood and imparts a unique auditory quality to its experience. The sounds of the wooden floor...human foot steps and creaking planks that suggest actual movement of the boards being tread upon (even if entirely non-apparent to the eyes), and the vibrations that one human body conveys to another through impact on the floor are nuances of experiential content of the wooden floor that imprints upon the human memory.

The floor of wood harbors a sense of detachment and independence—a sense that is retained visually and experientially. The detached and elevated floor is the ordered and secure level of human habitation. In the Yoshimura house, the floor is the defined interior, separated and protected from the 'chaotic and unpredictable' nature that lies outside and around.

The manner in which the floor is detached and elevated sets up different inside/outside relationships. These relate to both the floor's vertical relation to the ground below and its horizontal relation to the space that surrounds. The Ise shrine, regarded as an

ancient archetype of Japanese architecture, can be used as an illustration that contrasts in some ways with the Yoshimura house (Carver 1984. 26). In the Ise Shrine the floor is the separated single plane of spirituality raised from the mundane that surrounds (fig. 18 and 19)

Approaching the Ise Shrine, one is struck by the assertive presence of the floor as an element that rivals the dominance of the roof. A solid sense of support is conveyed by this floor that rests on heavy trunk-like columns. Even on the edge of the floor one already feels "inside" the sacred space of the shrine. The assertive sense of insidiness, that the floor helps create, is related to the actual construction of the floor. First, the boards of the floor are tightly spaced and the floor as plane is closed to the ground below. This is revealed by looking at the drawings of the treasury house outside the shrine that is very similar in character to the shrine (fig. 20-22). Second, the floor is supported at its very edge and the space of the shrine is emphatically delimited.

Other examples can be found in Japanese architecture where the floor allows the interior and exterior spaces to freely flow into each other in spite of the elevated level. In the Shokin-Tei tea house of the Katsura complex, the floor extends over its supports underneath, penetrating the space of the garden (fig. 23). The garden in turn flows under the tea house. Through these interpenetrations of inside/outside spaces the tea house itself gains a sense of levity. The house seems to sit gently upon the garden that it reveres and seeks to preserve. The Ise Shrine also allows the surrounding ground to continue underneath. Yet, unlike in the Yoshimura house or the tea house described above, one senses no desire for the floor to actively interact with the ground below, except through the stairs.

Experientially, the sense of detachment and is kept alive and palpable on a wooden floor by the auditory quality of wood itself, yielding a tenuous relationship between the inside and the outside that is below. Although this quality is grounded equally in the structure (formal attributes), the importance of materiality can be appreciated if one imagines and reflects upon a floor similar in structural form but built out of stone. By virtue of its

materiality (slabs of substantial thickness would have to be employed), the stone floor would convey, through feeling solid immobile and permanent, a tangible sense of closure, so pronounced that the awareness of "below" starts to fade away. The awareness, of course, can be retained through memory, if separation from the ground below is visibly expressed on the outside of the structure. Thus, even if an outside exists under a stone floor, its awareness would only be cognitive and cannot be felt as a real experience conveyed by the floor.

Therefore, experientially, the wooden floor evokes and sustains a persisting awareness of the outside, while being-on-the floor, and being supported by it. The fissures that occur between the boards, no matter whether they are roughly hewn boards or precisely fashioned planks, again intimate this sense of openness inherent to the wooden floor. How 'open' the wooden floor is to the outside below is actively determined by the exact articulation. The floor of the Ise shrine, on the one end, and the bamboo floor of the Yoshimura house, on the other, can illustrate the range of wooden floor's openness.

An even wider range of openness can be seen by references to wooden architecture from other cultures. For instance, the roughly wrought thick planks of boards that form the floors of stave churches and log-walled folk houses of Northern Europe represent, at one extreme, a floor that is so ponderous that an experience of something monolithic may be saved only by the auditory quality of wood itself and the composite nature of the floor that is apparent to the eye. On the other end of the spectrum are floors of bamboo, which one can find in many examples of Japanese architecture (fig. 10). These are literally "open." The gaps between bamboos nearly equal the thicknesses of the bamboos themselves and the floor starts appearing "transparent." However such floors are used not in spaces of regular inhabitation and use but in such areas as connecting corridors to a bathroom in the periphery of the dwelling. The awareness of ground below is transformed into a possible downward motion by these floors. A purely visual sense of downward opening is fostered by the reflective nature of wood. An example of this was seen earlier in the internal veranda space of the Yoshimura

house.

The detached floor, in its very act of freeing itself from the ground below, not only rises but also delimits its edge. The wooden floor, the very nature of which is detachment, naturally supports and delimits. Supporting and delimiting thus seem equally inherent existential expressions of the wooden floor. Physically, the archetypal wooden floor, limited by the size of the trees that yield timber, is composed of longitudinal boards of wood lain side by side on some sort of a skeletal framework. The directionality that results on its surface, not only due to the linearity of the planks but also because of the disclosed inner structure of the tree (in the form of wood's exposed grains), is, arguably, an innate character of the archetypal wooden floor as are delimitation and support (fig. 24).

The horizontality and the strong geometric order of the archetypal wooden floor can be interpreted to represent the "rational" nature of human-made environment. It is a floor that rises above the immediate world thus offering a slightly removed and at the same time wider perspective. In it is embodied not only a desire to disconnect but also an avowal of the human ability to do so.

Thiis-Evensen in his description of texture of floor and the layer effect convincingly argues the relation between geometry and "insiderness." He interprets the Katsura gardens in Japan, in which the floor gradually changes in texture and geometry from a rough and organic arrangement to an ordered geometry. These changes correspond to floor's movement from the level of the garden to the elevated level of the residence. Thiis-Evensen explains:

....this conception of the floor's span from water and ground at the lowest level to the ordered geometry of the house at the highest level, is at the same time an interpretation of the difference between outside and inside. The outside bears the stamp of the primeval nature, the inside the seat of humanity and greatest perfection (ibid., 73).

It is possible to see the evolution of various versions of the primitive hut, relying upon the reconstructions made by scholars, as an upward growth of the dwelling. What is primarily only a roof that hugs the natural floor, in an upward movement of growth, gives birth to walls

and then finally the floor. The occurrence of the wooden floor, no matter when or where it happened, could be seen as a culminating expression of human independence; of the ability to build a dwelling as a symbol of both separation and rising. The ascension achieved through the floor, however is still secular and not spiritual. For the floor only elevates the human dwelling but has not the vertical or objective presence to evoke a sacred expression. The constructed wooden floor, intended for habitation, still maintains close contact with the immediate natural ground because, people cannot deny their relationship to and dependence on the larger world for existence. The floor that hovers over the ground reflects the human desire to wrest control over the immediate environment and yet maintain proximity to the natural ground.

The archetypal wood floor is essentially a planar floor (surface) that is separated from the ground (mass): it has a natural dislike for the earth with its moisture and insects and therefore can neither belongs "on the ground" nor be "in it." Thus, in traditional Japanese architecture one does not find a wooden floor that is sunk into the earth. In the Yoshimura house, the floor of the internal veranda appears to lie on the ground like a carpet. However, in reality, the entire floor rests upon a continuous bed of stones embedded into the earth. Through its existence the wooden floor seems to separate the human from the world. Yet, at the same time, the wooden floor immerses human in the world, through the very act of act of constructing the floor that involves inventive and skillful reshaping and connecting dismembered parts of the tree.

A tangible sense of dynamism pervades the archetypal wooden floor. The aural quality, rooted in the elevation of the floor above the natural ground and wood's acoustic property, preserves one dimension of dynamism. Even when the floor's elevation is not visually expressed on the outside, the floor's resonating relation to the outside helps to sustain this dynamism. The physical structure of the wooden floor evidences the way the floor itself came into existence, thus imparting to the floor another level of dynamism. Pieces of wood

coming together are visible. The process of building the frame through connecting linear elements of wood and attaching the planks or boards on to this is retained and communicated in the archetypal wooden floor.

Just as the blocks of masonry or the growth rings in the cross section of a tree, the layers wooden floor stores the sequence of the floor's construction. This connection with a past process that built the floor is an experiential aspect that is rooted in the immediate and available to the senses, but yet one which does not stop there but extends back into the past. The sense of connection with past has been contended by various phenomenological researchers to be intrinsic to the idea of place or home (Dovey, 1985).

Although the detached wooden floor has a clear periphery—a strong delimiting edge of disjunction from the natural ground—this expression of separation is balanced and restrained by its directional surface expression. The directional expression of the wooden floor is determined by whether the floor is square or rectangular in form as well as the direction described by the individual planks of wood. The two aspects can work together and accentuate a particular direction, as in the example illustrated in fig. , or can oppose each other's motion tendencies resulting either in a balance or triumph of one.

With regard to the strength of delimitation of the floor, which implies severance, the directional motion of the linear planks has particular significance since their directional motion appears as a desire to connect back with the surroundings. Thus, a balance seems to emerge from the confrontation between forces that desire to separate and those which act to connect the human dwelling to the world at large.

The archetypal detached floor, Thiis-Evensen describes, can either be raised above the ground or lie lightly on the floor. This reflection upon the archetypal wood floor suggests that it cannot lie upon the ground; or, specifically, upon the "mass" of the natural ground as a 'surface.' Wood has the ability to provide its own mass in the form of an abstract skeletal structure and also a surface. The wooden floor is the 'surface' and the mass of has been

supplanted by a ordered and geometric structure. When wood is called on only as a floor surface some of its visual and tactile qualities may be retained but archetypal experience of lively connection to the outside will be lost.

The raised wood floor inspires connections. In itself it is, literally, a layered floor: a layer of "surface" attached to a frame that lies below. It is, viewed from without, a layer of man-made floor floating over the natural ground; a singular precursor to the steps. Conversely the steps that connect the floor to original floor are but 'pieces of transitory floors.'

The historic development of the physical structure of the wood floor has been one of refinement of the shape of the individual planks: from the roughly hewn boards wrought with adzes to the precisely fitting thin sawed rectilinear planks. Same movement toward precision equally applies to the surface finish of the wood and the frame support underneath. While the increasing concern for precision can be explained in many ways, here, in the context of the floor of the human dwelling, it signifies the effort to strengthen the contained interior space and exclude the exterior.

The wood floor is the floor of the home, for it is above the earth. In describing the sunken floor, which is the direct opposite of the detached floor, Thiis-Evensen explores the phenomena of the ground into which one is physically drawn by this floor. These phenomena, he argues, are rusticity, death, water, and fire and the human dwelling rises above these. It is an intuitive understanding of these which is revealed in many examples of historic architecture where 'down' was represented by elemental and unformed floors, and the 'up' by abstract and ordered floors.

The reflective description of the archetypal wood floor leads to two major recurring themes: separation and connection. The former lies imbedded in the very origins of the floor coming into existence and the latter in the process that follows. Separation suggests delimitation; connection implies openness. The wood floor thus can be seen to represent the nature of human being: the rational being's desire and ability to alienate and create an order

distinct from that of nature's, and yet the persisting compulsion to be connected to the larger being of which the human's are a part.

THE ARCHETYPAL WOODEN WALL

Based on the interpretations of Yoshimura's walls, what can be understood to be the essential aspects of any wooden wall? In the Yoshimura house, a wide variation in the degrees of spatial enclosure is seen to be sustained by the wooden walls. At the periphery of the house, on the southern side, where the depth of the veranda and the deep overhanging roof together create a transitional depth between the inside and outside, the walls are made of paper screens mounted on a wooden frame. Further, these walls, known as Shoji, are set in grooves on the floor and the beam above and can be slid to the sides or even removed to completely open the space to the outside. The interior is no longer enclosed by the wall, and physical movement between the two spaces becomes possible.

The in-fill walls, also seen on the southern side of the house, are permanent and enclosing even though it expresses the interior and exterior forces through its composite nature. The frames define the edges of the wall and the corners of the space, thereby expressing a possible movement from the outside, while the in-fill surfaces enclose the space and express the interior's resistance to the external forces. Inside the house, one also finds walls composed of wooden boards attached to a frame work. The expression of the surface of this wall is reminiscent of the properties observed on the wooden floor.

A much wider range of wooden wall types and the specific spatial enclosures they create become immediately recognized when one reviews, even casually, other historic examples of Japanese wooden architecture. The paper-thin walls of the Minka houses and the massive log walls of the ancient Japanese treasure houses can both be taken to represent the limits of a theoretical continuum of wooden wall types and varying degrees of spatial enclosure. The fragility of the Shoji wall, its whispering presence, comes forth in Chuji Kawashima's (1986, 47) description:

The pure white of Shoji panels gleaming in the shadow of deep eaves is one of the most striking features of Minka. To the Japanese, Shoji evokes an indescribable pathos: the lonely traveller passing by at dusk who hears the muffled laughter and glimpses the silhouettes of a farm family beyond the translucent paper, like figures in a shadow play;

the pale light of the moon casting quivering shadows of branches against the pristine paper that shuts out the chill of the autumn evening.

Contrasting with this, at the other end of the spectrum, are the wooden walls of logs that emphatically reject the exterior spaces. Norberg-Schulz describes the experiential content of the log wall's enclosure through the timbered churches of Russia which he calls 'caves of wood':

Transparency and skeletal articulation were absent, replaced by enclosure and earth-bound solidity. wood becomes an omnipresent physical fact, embracing man and giving him a foothold within the unknown expanse of forest and tundra (Suzuki and Futagawa 1979, 9).

Wood is thus adaptive to both the skeletal as well as massive systems of building the wall. Although Thiis-Evensen suggests wood as the natural material for the skeletal wall, he also refers to wood as one of the natural materials with which a massive wall can be built (Thiis-Evensen 1987, 167). In the attempt to understand the nature of the wood, it is necessary consider the various wall types and then ask what their underlying commonalities are. Here, in addition to the various walls of the Yoshimura house, references will also be made to other examples of Japanese architecture, in particular to the Ise Shrine and the Shosoin treasure house in Nara, Japan (fig. 19 and 25).

Many architectural surveys of wood buildings at the very outset call attention to the two generic types of construction possible with wood: the massive log structure and the skeletal post and beam structure. Although the two generic types of construction relate to the structural systems of supporting the roof, it is the walls, built of logs or posts and lintels, that are massive or skeletal. Therefore, one might suspect that the character of the walls, its experiential qualities, bears upon the particular support system of the roof.

The distinctiveness of the two types of building systems, however, do not create two sets of experiences that are mutually exclusive. In other words structural classification does not presage the distinctive nature of the experience of a wall. An example is the "Okabe" walls of the rural Japanese dwellings, the Minka. These walls are identical to the 'hanging walls'--

another common wall found in Minka—in that they too employ a web-like bamboo framework as a core which is then plastered on the inside and out with plaster, or simply mud. The difference, however, is that the okabe walls' inner skeleton is entirely covered over with plaster and no part of the internal frame work is revealed. Just as better insulation and fire resistance are attained, the plastic, molded quality of a massive wall also results.

The "woodenness" of this wall can be questioned. Scientifically, after all, bamboo is grass, not wood. One can imagine the frame to be entirely of wood in such a wall to get around this technicality to imagine how a wall that is technically skeletal can still be experienced as one that is massive. It would seem therefore, that a classification based upon the structural system of the roof's support can be only a technical fact and need not determine the experiential content of the wall.

Experiential characteristics can overlap when the structural systems mix. The half-timbered houses of central Europe form yet another example to illustrate overlaps of experiential qualities. By strict definition, they are skeletal constructions but experientially they do convey the qualities yielded by masonry houses even though the frame work is expressed on the outside. Thus, what is important is whether the wall is experientially massive or skeletal. While the enclosed spaces of the massive and the skeletal wooden walls are qualitatively distinct, what can be recognized as their fundamental qualities that derive from the innate qualities of wood itself?

The wall, as an element of spatial definition and containment, is planar; in other words, it is a plane that differentiates the exterior spaces around from that which is above. While a masonry or a molded mud wall can be a curving plane, this is not natural to the wooden wall. Wood builds planes that are flat and they are revelatory of linearity as the material's one fundamental quality. thus, in exploring the major forms of Yoshimura's walls it was noted that the concave and convex forms were absent and, further, divulged no tendencies of inclining towards the ground. The smallest component of the wooden wall is

linear. These linear pieces could be boards of precisely shaped wooden boards attached on to a post-and-beam frame or, "unhewn timber, generally the proximal portion of a branch" or a trunk (Morse 1961, 23). The linearity of the even smallest component of the wooden wall is a basic quality that persists whether the wall is massive or skeletal.

To what extent the individual linear elements of wood become expressed depends on the specific articulation of the wall. The articulation, however, has no bearing on the flatness of the wall. Two examples can be described to emphasize the flatness of the wall where the linear elements of the wall are differently expressed.

In the case of the walls of Ise Shrine, the precisely shaped wooden boards are fitted so tightly together that the wall surface is imparted almost a neutral expression. The individual boards are visible only when one draws closer to the building or upon careful looking. The total effect is that of the molded-massive wall which Thiis-Evensen describes as a wall that is evasive in terms of scale, and draws one attention upward. Thus, the walls create a solid enclosure to contain the sacred space and at the same time, directionally, lead one's mind towards the spiritual sky.

The linearity of wooden elements is articulated in the Yoshimura house to convey a sense of openness and at the same time create a strong spatial definition. The wall surfaces here are enlivened by the geometric order expressed by the wooden frame work. The individual linear element is visible and yet it is subservient to the whole pattern created. Although the frames of the infill walls invite inward motion, the wall assumes an abstract character different from that of the Ise Shrine. The rectilinear forms and their precise connections describe an idealized geometric order which immediately contrasts visible patterns and order in nature.

Through their strong geometric order and abstract character, the walls of both the buildings thus express themselves as humanly created enclosures that are far removed in character from the enclosure of the cave: the natural dwelling appropriated for human

occupation. The whole is saved however from an alienating perfectionism by the asymmetrical rhythms and most of all by the imperfections of wood itself. The visible grains of wood and the stains and imprints on its surface caused by tools and human use speak of passage of time. Once again, these surface properties of wood form sources through which one can maintain connection with past processes.

The archetypal wooden wall, even if it is massive wall of wooden logs, predetermined by the linear nature of wood, is innately flat. Even when the logs approach the roundness of the original tree trunks, as in the walls of the rural Norwegian dwelling in fig. 28, these curves do not undermine the flat and stretched expression of the wall.

The grand treasure of Shosoin at Nara, Japan, can be mentioned as an example in which the walls' flatness and the powerful linear motion of the wooden logs can be simultaneously felt (fig. 25). Here, the intrinsic flatness of the walls can be appreciated at the sharp meeting of the walls. The corner powerfully defines and corners of the interior space and abruptly excludes the outside. The power of this corner sustains even in the polygonal log buildings of North America that approach being a circular space.

The strong edge definition, a concomitant of the innate flatness of the wooden wall is seen also in the de-materialized skeletal walls--such as the Shoji and trellis wall--and is visually communicated by the vertical posts at the corners. Even as the lighter walls permit a more pronounced inside-outside interaction, the post-and-beam dwelling exudes a strong objective presence. Linearity of the wood inspires connections; It is a quality that yields strong internal spatial definition and external form definition to the archetypal wooden building (fig. 37).

The dominance of rectangular forms in Japanese architecture has been attributed to wood by many authors:

"It is perhaps because of the reliance on wood as the primary material and the post and lintel system as the basic structural technique that the Japanese architecture usually favors the rectilinear over curves and arches. Though one does see curvilinear forms..these are decorative details of otherwise planar construction" (Horton 1983, 11).

However, linearity of wood persists and determines the characteristic expressions of the wooden wall even when the basic structural system is not post and beam. The first of these expressions is the flatness of the wooden wall.

The archetypal wooden wall comes into being as pieces of wood that are essentially linear come close together to describe a plane. A plane that replaces, in a more solid and enduring way, the animal hides that covered the rudimentary frame of the primitive hut.

The way linear pieces of wood come together is a crucial determinant of the dialectic between inside and outside: the tighter their contact with each other, the more pronounced the containment of the space. In the case of the log wall, the fissures between the planks or the logs, as the case may be, is where the wooden wall is thinnest. It is through these that the wooden wall becomes permeable. Through these, streaks of sunlight may penetrate the insides of the dwelling, thus illuminating its "insideness" much as the light of a candle reveals darkness. Pests and even cold drafts of air can access the interior space through the chinks of a log wall thereby contradicting its appearance of heaviness and impermeability. Slits and minute fissures suddenly may become revealed as strong sunlight project their "shadows" on to an internal surface.

The trellised screen wall, common to Minkas, is paradigmatic of the wooden wall in that it stores and conveys the dynamic process through which the basic linear elements describe the wall (fig. 8). In it, one sees the dynamic nature of the wooden members that build the wall: not only how the vertical bars can "move away" and the enclosed space can be even more tightly contained, but even how the spaces between the wooden bars can "expand", diluting the wall and releasing the contained space. The changing light penetrates the enclosed space which constantly assumes a different degree of "insideness".

Depending on the time of the day and the sun light's angle of penetration, the interior will be in complete shade or be lit by slivers of light. A similar condition applies to the human perception of the wall too. Seen obliquely the screen wall could appear as a flat enclosing

plane (fig. 11). Seen directly, it rhythmically alternates between closure and openness; between opaqueness and transparency. The rectangular sections of wood draws and directs one's attention from the outside to inside through the depth of the wall.

The screen wall on the outer edge of Yoshimura's veranda intimates these experiences while other examples can be referred to illustrate this point better. Higher use of wooden grills, observes Carver, is one characteristic aspect of the Urban Minkas: "use of wooden grills satisfied the occupants' need light and air and yet provided security and privacy to the interior" (Carver 1984, 123).

While the spatial definition of these screen walls are strong, the centrum of the space resonates with the outside changes. The door is a means to get in and out of the space we build, and the window a means to sustain connectedness with outside, while being inside. The screen wall of wood can be seen as the integrated whole of the wall and the window.

The archetypal wooden wall naturally expresses order and rhythm through the linear elements of wood (fig. 26). The linear pieces of wood that build the wall set up a rhythm and begin guiding the location of openings. In the log walls, the openings signify absence or discontinuation of the logs and in a skeletal wall the absence of enclosing surfaces. An active interaction thus exists between the doors and windows and the linear elements of wood that make the wall. Again, the screen wall can be seen as a continuous rhythm of presence and absence of the wooden bars: the wall interrupted by the window and the window by the wall.

No matter what the wall type is technically, the wooden wall entails an expression of the process of construction. The archetypal wooden wall reveals layers of comprehensible structure; of how it was made. The expressiveness of the archetypal wooden wall is not contingent upon the structural system. It does not always speak how the loads are carried and how the roof is held up. The visible order is a subtle one that talks of the 'birth' of the wall: of linear elements (lines) coming together, rhythmically repeating to describe a wall (plane).

Another expression—regardless of whether the construction is massive or skeletal—that

can be argued as rooted in the linearity of wood, is inherent lightness of the wooden wall. The log wall, even though extinct at the present times, can be an useful example since it represents the massive wooden wall. The Shosoin treasure house held to be another ancient archetype in Japanese architecture will be the primary reference to this description (fig. 25). Additional reference to some Norwegian rural log buildings will further ground the interpretations (fig. 27-30).

There is a bipolar characteristic of the log walls of that sets it apart. It seems heavy and at once light. Its enclosure is solid and yet it conveys potential openings. One would, in approaching a massively built wall not only expect a sense of solidity, permanence but even a static feeling that arises from its weight. But the immediate reaction contradicts the last expectation at least to some degree to cause curiosity in the observer.

These experiential qualities can both be seen to be related to the horizontality of the wall emphasized by the wooden logs and to wood's disaffection for the ground and its moisture. The horizontal expression draws one's attention to the ends where two powerfully expanding walls meet, accentuating the edge (fig. 28 and 29). The horizontal patterning should, according to Thiis-Evensen, convey weight against the ground.

The solid log wall, no matter how heavy, is still not bound to earth the way a massive stone or mud wall is. Rather, the wall's heaviness is somehow alleviated. No matter how massive, the wall still does not penetrate the earth. Some other element is called upon to intervene which then conveys the wall's burden to the earth. This quality, seen earlier in the wooden floor also, is rooted in wood's natural disaffection for the moist ground. The exposed sections of the individual logs are potentially the 'roots' through which moisture may re-enter the dried wood and kill it. To save this, the log ends have to stay as far away as it can from the dwelling to keep moisture at a good distance. Thus the horizontal expression of the wall is further emphasized over the downward weight.

Interpreting these walls in terms of Thiis-Evensen's height theme, one realizes that the

lowest energy field of the log wall—the place where the wall is closest to ground, assumes—great significance in the over all expression of the wall. The lowest log might suddenly come alive, as in the Shosoin treasure house, as a bridging beam that holds the human dwelling up horizontally (fig. 25). Or, as in the example of the rural dwelling in fig. 28, the entire dwelling appears to float over the immediate ground which is not horizontal and therefore can not be inhabited. The expression of the detached wooden floor that hovers over the ground is thus echoed by the walls.

The logs are thus both passive elements that obey gravity, as well as defy it. Rather than merely lie upon each other and rise to engender the wall and carry the roof, the logs appear to continuously span the corners of the space, bridge them, and thus build the wall. In all, the log walls convey, simultaneously, a horizontal and heavy expression and an air of independence through detaching from the ground.

How do the solid enclosing walls of the Shosoin treasure house also convey a sense of openness? The log wall essentially builds cave like enclosures and discourages openings. It is basically a thick wall, yet, one of varying thickness. The space where one log rests upon another is where the wall is thinnest; where the dialogue between outside and inside is most audible. In unfriendly climates it is this space that poses a problem, notwithstanding how heavy and thick the wall may seem.

The thickness of the wall is revealed in many ways. One can see it in the openings and also in the corners where two walls meet where the individual logs intersect. Even when directly faced with a wall, where the log ends might be out of sight, the roundness of the trunk suggests how it will complete itself and therefore reveal the thickness of the wall.

In the corner where two log walls meet we find great energy contained. The individuality of the walls and their desired directions of movement are expressed strongly and so are the individual logs (fig. 29). One becomes aware of many things all at once. The walls' thickness and the girths of the logs are revealed simultaneously. The awareness of the

massiveness of the wall is concurrent with that of its composite nature, its divisibility. thus the duality of heaviness and lightness are immediately experienced.

Again, there is a connection with past processes. The number of major steps in erecting the wall is recorded in the wall's many logs that are piled atop each other. If it should be a wall of logs that are proximal portions of tree trunks, one is intimated of the number of trees that were felled to make the wall.

In many examples, the lengths of the walls are often interrupted and locked into by walls that subdivide the space within (fig. 30). There is a disclosure of the inner dynamics of the dwelling itself. The continuous revelation of structure, both the immediate and the subtle, and of many levels, can also perhaps explain the dual character of the log wall that are seemingly contradictory : massiveness and dynamic lightness.

The essence of the wooden wall is linear elements and their interface. Linearity as a nature of the wood perseveres in the archetypal wooden wall. In this nature is rooted, wood's desire to connect; to build flat walls that express the order of rational human mind; to strongly define the spatial form of the wooden dwelling which sits upon the earth as a unique artifact. The individual pieces of wood, no matter what type of wall it is, are discernible and visually convey some potential to separate and impart the whole wall an expression of dynamism and lightness.

The archetypal wooden wall expresses the rationality of humanly-derived order. This order is not passively subservient to the natural order but rather, reveals a creative interpretation of that order and, through it, expresses a sense of freedom. The expressed order can be seen to represent human desire to separate from the larger world. Yet, the wooden wall is inherently open, and through this openness the delimited interior space is perpetually connected to the outside world.

THE ARCHETYPAL WOODEN ROOF

What can be understood as the unique and persisting qualities of any wooden roof?

To understand the qualities of any roof, it is necessary to describe the roof's relation to the sky above as well as to the horizontal exterior spaces around. Through the interpretation of Yoshimura's house it becomes possible to ground Thiis-Evensen's explications of the roof, particularly the gable form.

Of the five basic roof forms that Thiis-Evensen discusses in detail, it is with the gable roof and its variations that wood is most strongly associated. In the Yoshimura house, the gable form dominates and therefore emphasizes the roof's directional expression. In order to consider the space that is centralized by the roof, this interpretation will refer to other examples of Japanese wooden architecture, in particular the archeological reconstructions of the ancient dwellings.

The wooden roof can be treated as being analogous to the archetypal roof. Wood, either in the original state as branches or shaped to some extent, is constantly cited as the basic material with which primitive dwellings in various parts of the world were built. The primitive Japanese dwellings can be mentioned as an example in this regard. Edward S. Morse (1961, 331) in his book, "Japanese homes and their surroundings" quotes Ernest Satow, Esq:

Japanese antiquarians tell us that in early times, before carpenters' tools had been invented, the dwellings of the people who inhabited these islands were constructed of young trees with the bark on, fastened together with ropes made of rush or tough shoots of the wistaria, and thatched with grass.

To regard the archetypal human-made dwelling—the primitive hut—as having been 'all roof' also seems reasonable. The theoretical reconstructions by different scholars concur in describing the first dwellings as ground hugging roof that forms the shelter. Murray Silverstein (1992, 98) observes a consistency in the pattern of the first buildings:

The precise shape of this pattern varies through time and place...the pattern is remarkably consistent: there is always the little house formed by the roof on the ground that shelters and 'centers' the life within.

Physically, the shelter can be imagined as the roughly pyramidal or conical roof-of

wooden poles resting on, or, rooted in the ground and secured at the top. Such a dwelling is closed to the outside and oriented inward (fig. 31-32). References can be made to the pre-historic Japanese Yayoi dwelling and the 'first building' drawn by Viollet-le-Duc to illustrate the recurring pattern in the first dwellings.

The archetypal roof singularly acts as the complete dwelling. It not only delimits and claims a piece of the ground but it also excludes the outside around and above. It represents dwelling in its most essential form as a contained space for human habitation. The archetypal wooden roof precedes the birth of, and the clear distinctions between, walls and roof and in this an interpretation of the monolithic cave can be interpreted. Thus, the roof 'contains' the dwelling and can be regarded as the 'roof-dwelling.'

Defining the interior space three dimensionally, in one stroke, the roof assumes a significant and unifying presence of form that the walls and floors do not. The single roof form communicates the idea of shelter in a three dimensional and complete way. Hence the reflection on the nature of the roof seems inescapably bound to address its formal qualities. The forms that belong to the wooden roof can be represented by two generic types which again relate to two archetypal spaces, which relate to their motion expressions in relation to the exterior spaces that around.

The conical or pyramidal roof defines a centralized space that is introverted, and the gable roof makes the space that opens on two sides and divulges a directional tendency in relating to the outside. Thus the roof forms themselves express two conflicting human desires that are imbued in the dwelling too: the instinctive need to draw away from the perilous world and seek a personal security, and the simultaneously persisting desire and need to be connected and related to it.

The Centralizing Form and Isolation-Inwardness

The increase in human activity and the development of the man-made dwelling can be

seen as reciprocally related. Understanding and interpreting the natural world and its order, underlie both the ramification of human activities and the development of the human dwelling. For so long as the human kind's primary occupation was hunting, and human activity was basically restricted to the outside, the human dwelling performed two basic roles of providing physical and psychic refuge. The simple primitive huts that are 'all-roof' growing right out of the earth, define and separate a space, the focus of which is its own centrum where existence is calmed. The characteristic centrality such a dwelling reflects its secure interior space but reflects that the shelter is not a place of many activities.

The wooden roof when it manifests central form does not mimic the sky. Unlike the dome that is in its form a reminder of the sky and the cosmos, the wooden roof is characteristically more resistant to the sky. In that the wood roof is built of linear elements, it is by inclination potentially non-continuous and "stopping". A conical wood roof, although sharing the properties of centrality and ascension with the dome, is still markedly different in not being and continuous and is strongly assertive of its presence. The expression of the conical roof is grounded in linear elements of wood which preclude the continuous surface of the dome.

Externally, the form of the conical roof can be compared to the pyramidal roof which Thiis-Evensen discusses as a variation of the dome form. The pyramidal roof, which he says is "easily built of wood," is similar to the dome in that it too gathers and centralizes the space underneath around a collective point. "But the pyramid also rises and points directly upwards and is equally collective in its erect and upright bearing" (Thiis-Evensen 1987, 325). Thus, the pyramidal roof has the potential to "both anchor and mark, to collect and gather around as a low center as well as upwards around a vertical" (ibid.).

Another example of Thiis-Evensen that involves wood and also the conical form directly is also found in his discussion of the basic forms of dome. He describes the conical form, which he believes after E. Baldwin Smith, to be the first dome form: "The form has its

origin in the flexible or naturally bent reed and branch forms which were fastened together at the top with interwoven bands" (ibid., 307) (fig. 31). Although the continuous surface of the dome form is involved here it is still only in the vertical direction. What is expressed more strongly is the upright and objective presence which contrasts the dome which, externally, does not stop the space around but allows it to continue and freely flow.

Whereas the dome's relation to the sky involves both rising as well echoing the sky's form, the archetypal wooden roof's relation to the sky is expressed primarily through ascension. For the roof of wood is built by linear elements rhythmically repeated, continuously connected and layered till a plane is described.

The Extending Form and Desire for Connectedness.

In the gable roof form with two inclined planes meeting at a ridge, the ridge pole becomes a signifier of the dwelling as the shelter of activities. Human activities occur on ground and involve indispensable movements. The wooden roof as it embraces and houses an increased field of human activities expresses this movement through its ridge-pole and the eaves; the directionality expressed by the ridge and the eaves can be seen to signify a string of increased events and activities that are protected under the extended roof.

The dynamic directionality of the gable roof can be seen to express the prevalence of extended activities protected under the roof and at the same time, through the two gable sides that suggest possible penetration of the enclosed space, openness to the outside. The openness is a reflection of better human-control of the threatening external forces and the human need for connection with the world around.

The restored Yayoi dwelling, an ancient dwelling of Japan, combines the centralizing and directional roof forms (fig. 32). The entrance to the house located right below the open gable end of the roof emphasizes the openness of the house while the main conical roof form centralizes the space of the house under a point.

In relation to the sky above, the expression of the roof is related, as Thiis-Evensen points out through out his discussion, both to the form of the roof itself and the roof's relation to the supporting walls below. One feature that persists among the stylistically varied roof forms of the Japanese vernacular architecture is the roofs' extension over the supports below.

The nature of the wooden roof is to extend over the supporting walls. In the sinking motion of the wooden roof, specifically in the gable roof supported on walls, one can interpret a desire to connect with the earth again: a desire that hearkens back to the primitive dwelling. The archetypal wooden roof, defying the restraint of the walls, sinks towards the ground, thus expressing affinity for what it once was rooted in. The thrust of the walls, of the vertical posts, has pushed it upwards but the desire to return to the ground can be felt expressed by the overhanging eaves. It is this which makes the delimiting property of the roof suggestive and subtle.

Whereas the floor and the walls physically delimit space, the roof, by its dynamic nature of sinking towards the ground, only hints at a definition of the dwelling's boundaries, thus extending both the exterior and interior spaces. Through this mediation of inside and outside forces that the roof's overhanging quality facilitates, the dwelling stays visually and physically connected to the outside world. Thus, through the formal expression of the wooden roof the dwelling becomes a human place independent of nature and through the gathering and spreading qualities of the roof, the delimited space of the dwelling stays constantly connected with nature.

In the wood-dominated Japanese architecture, the roofs are "land marks in the landscape" (Carver 1984, 88). Carver points out: "In contrast with many parts of the world where the walls or mass of a house first catches our attention, in Japan it is the roof" (ibid.). In spite of their form—which is 'halting' and assertive—and their immense sizes, the vernacular wooden roofs of Japan are still not earth bound and heavy.

The wooden roof does not appear as a solid object that sits on the landscape, but

communicates the volume of the contained space. This is because, from outside, the wood-roof reveals itself as a plane. The overhangs that appear to embrace the peripheral space lying outside the delimiting walls reveal, even if not the sectional composition, at least the thickness of the roof. The planar aspect is manifested by the roof's over-hang regardless of whether it is the 'thin' and light tiled roof of the southern Minkas or the all embracing and thick thatched roof of the northern farm house.

The archetypal wooden roof is built of many layers of wooden elements which can be expressed inside the space. Internally, in the Yoshimura house, the hierarchial relationships of the elements, their primary and subservient roles in building the roof, their interpenetrating connections and the dynamism of their weights are all experientially felt (fig. 4 and 15). The heaviest and the most unfinished wooden elements are the ones closest to the floor. They appear to bear the weight of all the subsequent layers of wood which become more precisely shaped and lighter as they climb higher. The visible layers retain and narrate the active process of building, extending from the making of a joint to building the whole roof, much like how a denuded trunk or a gnarled piece of wood narrates its life story.

The archetypal roof is often seen as a 'container' of the dwelling. While the dome and vault of masonry is inherently closed, the wooden roof is full of possible connections to the outside. It is this possibility of openings for contact and movements between the two spaces that makes the primitive contained space of the wood roof habitable. The surface of the archetypal wood roof is dynamic and pregnant with possibilities of openings. Connection to the outside becomes possible through the spaces between the frames, the surface of the roof can be weakened to make contact with outside.

It is, again, the linear nature of wood that imparts strong dynamic properties to the wooden roof. Internally, both within the concentric conical roof and the directional gable roof, the ascending space is often powerfully emphasized by the rafters or the poles, thus suggesting a connection to the outside through the ridge (fig. 33). The directional tendency

could also follow that of the ridge in case of a purlin roofs thus drawing our attention to the gable walls they penetrate.

The development of the wooden roof can be seen as one from a simple and essentially earth-bound 'roof-dwelling' that centralized and secured a place essentially of refuge, to one that became a complex web-like structure that protects a large realm of human activities. In its developed form the increased number of wooden elements and their visible presence give the internal space of the wooden roof a "dense" character reminiscent of dense woods (fig. 33).

The quality of light under such a roof is a distant reminder of the filtered, colored and constantly changing light of the dense woods. Should light be allowed to enter from above, through an opening in the ridge or through a gable end it is constantly interrupted, fragmented and modulated by beams cross beams and posts. The walls and the floors, even if they are flat unarticulated surfaces are enlivened by the shadow play of the roof structure: the passing of time, its changes are continuously traced on these surfaces by the myriad elements that the roof needs to support itself; to support the activities under it.

The structure itself is typically repetitive and highly ordered. Yet experientially, it does not manifest any sense of regimentality or oppressiveness. For the roof structure is a rich embodiment of hierarchy and constant revelation of relationships. As the internal space rises, the layers of frames multiply in number but reduce in their sizes; their substance. Close to the floor are linear elements manifesting strength, and therefore radiate solid presence, and farthest above are the smallest elements that multiply, draw close, and fill space evoking in a way the order of a tree.

The highly ordered geometry of the wooden roof is often reflected by the wooden walls that support it, particularly if they are skeletal. The wall surfaces also manifest strong geometry and repetitive rhythms that reflect that of the various elements of the roof. Openings in the walls then become neither arbitrary nor rely entirely upon intuitive positioning, but are actively guided by and resolved between the structure of the roof as well as that of the walls.

Thus, internally, an appreciable order is established that actively relates the enclosure around with the one above.

The geometric order of the wooden roof could reflect the human independence and rejection of the natural world in preference to what could be individually re-created. The order approaches a complex and highly rational character in some examples of Japanese houses. In the interior spaces of the Yoshijima house in the Tohoku region, north east Japan, one finds exposed beam work that is dramatic and also highly ordered (fig. 34). The enormous beams here reflect the largeness of the house and heavy snow prevalent in this area.

The repetitive rhythm and the geometric order is saved from clinical perfection by two aspects. First is the three dimensionality of the framework which is perceived as an ever changing, dynamic and infinitely extendable. Second is the articulation of wood in terms of how the different elements are shaped and finished and to the surface properties of wood itself. Each piece of wood that composes the frame, no matter how similar it is in its size to another and how subservient in the supporting the roof, still expresses sense of individuality through surface grains, the veins, and the knots.

Just as in the Yoshimura house, here too, the heavier beams that offer primary support are minimally shaped and one can still recognize the original form of the tree. Although linear, these beams still retain their original curves which balance the straightness of the other frame elements above.

One could recognize many parallels between the structure of the tree and that of the wooden building, particularly the roof. The vertical posts and the overhanging canopy is perhaps the quintessential quality that persists from the natural woods to the human dwelling of wood.

Wood that we build with, prior to its disjunction from its source, is a part of a structure that is non-abstract and immediately appreciable. The structure of the tree is non-abstract in that it is meaningful as a living thing in nature. The tree stands upright

independently, with strength and yet, gracefully; as an ideal for the human to emulate. The profundity of the tree's structure is appreciable at another level which is more cognitive, a little less immediate, and relies upon unconscious human memory. This relates to the growth of the tree: a process that can correspond with that of a human life. The process of the tree's growth retained in human memory, remains visibly recorded in the tree and is symbolic of the tree's graceful defiance of gravity and other natural forces. Every branch is a visible record of its own path towards the sky and life sustaining sun.

The five-tiered pagoda of the oldest extant temple in Japan, The Horyuji temple, is perhaps the most exemplary of a literal translation of the structure of the tree into wood architecture (fig. 35a-b). In the pagoda a massive central column runs the entire height of the structure. The pagoda roofs appear quite similar to the canopy of a tree particularly emphasized by the gentle curving eaves. They seem to rest on the main 'trunk' being supported by brackets that are readily interpretable as 'branches'. The growth of this structure, however, reveals the repetitive and geometric order that characterizes human interpretation of natural order.

Another literal similarity to the tree's structure can be observed in certain details of the great Buddha style Japanese temples (fig. 36). Bracket arms that support the roof overhangs, characteristically, penetrate the vertical posts. The penetrating connections can be seen to have a direct parallel in the way branches grow out of a straight growing tree.

However, when one seeks examples from history, imageable similarities between the natural tree the human-made structures are not many. Many of the relationships are subtle and can be revealed only through careful interpretive "readings." The difficulty of this endeavor calls attention to the uniqueness of the roof's structure which is paradigmatic of the rationality of the humanly derived structure. It stands revealing the inspired inventiveness of human nature.

Building the wooden roof is an activity that holistically engages human being with the

world. From the most primitive and simplest to the most complex, wooden roof structures offer testimony to the versatility of the material as much as they do to human perceptiveness and inventiveness in grasping and inventing order. From the simplest to the most complex, building the wooden roof involves creating connections; making joints. In the Ise Shrine's roof one finds the primitive roof form that survives from the pre-historic dwelling constructed through the highly refined and imaginative joints.

A joint—let us say where a post, a transverse beam, a rafter and a purlin—meet can be resolved in many different ways which present themselves in the particular situation to the particular builder's interpretation of the situation at hand. The process of building, with wood, the means to a dwelling of wood in itself promises to be a completely involving and enriching activity. The building of the wooden roof thus engrosses human physic as well as mind without any dichotomies.

Once again, as with the wooden floor and wall, one finds that the themes of separation and connection recur in the process of construction and in final expression of the wooden roof. While the linearity of wood imparts to the roof an assertive presence delineating the wooden dwelling as a disconnected artifact, it is the same quality that makes the wooden roof inherently open and light thereby connecting the dwelling back to nature.

CHAPTER VII:

CONCLUSION

THE NATURE OF WOOD AND THE ARCHETYPAL WOODEN DWELLING

The interpretation of the three elements of the Yoshimura house shared the common interest of exploring wood and the specific expressions it imparts. The explications are linked further by their common focus on the inside/outside relationships that is sustained by wood. It is the same concern for the inside/outside dialectics that underlies Thiiis-Evensen's individual explorations of floor, walls, and roof.

Through the preceding interpretations, what can one understand as being the essential aspects of wood? For this, the overall expression of the archetypal wooden building must be described. In this way one identifies the recurring themes that relate wood and the three archetypes together. In the description of the archetypal wooden roof, some experiential and structural similarities between the tree and the constructed wooden roof were observed. However, in overall expression, the wooden dwelling manifests one strong difference in expression which involves the manner in which it "rests on the earth and how it rises towards the sky" (Schulz 1980, 14).

The tree permeates and penetrates the earth. As a tree grows out of the earth, its roots grow into the ground, since the very life of a tree on earth relies on being partly buried within it. Notwithstanding this deep-rooted connection, the wooden building wants to do little with the earth by way of actual contact. The earth is damp and moist and harbors insects even though it is insulating. The wooden building needs to maintain minimal contact with the natural terrain—just enough to be supported by it, if it should not rot. The existential expression of the wooden dwelling is rooted in this ironic disassociation of the wooden building from the ground. The rejection of the natural ground is expressed by each wooden element: the floor detaches and rises, the walls make a reluctant and minimal contact with the ground, and the both these elements 'push' the roof upward from the ground that it was once

anchored in.

Overall, the wooden building conveys a sense of independence and lightness. Apart from the rejection of the ground's moisture, the wooden dwelling's levity can be related to another recurring aspect: the persisting linearity of the wooden elements. Linear elements of wood persevere whether the building uses unshaped branches of tree or constructed of highly shaped and refined wooden elements. It is to this aspect that many of the wooden building's expressions can be attributed. In the case of the log walls, the horizontal movement is stressed, and in case of a framed building the geometric order becomes a strongly manifested aspect.

It is through the predetermination of wood's linear nature that the wooden building gains the presence of a human artifact that sits on the natural landscape, and, can be thought to express disconnection. Yet, it is through the linearity of the wooden elements that the elements of the wooden dwelling and the whole dwelling itself becomes inherently open and expresses connection.

Thus, wooden buildings express geometric order reflecting human intervention and independence. Existentially however, the archetypal wooden dwelling is constantly in touch with and dependent on nature.

The connection with the larger world is also implicit in building the wooden dwelling that involves the human physique and psyche. Building the wooden dwelling is an act of shaping and connecting wooden elements which demonstrates human perception and understanding of the natural order and the inventive recreation of a separate order. It becomes an act through which the human becomes involved and connected with the world. The spirit of independence and detachment conveyed by the wooden dwelling as an artificially created object is thus countered and balanced by the immersion that building with wood inspires.

The tools used to construct the wooden structure are an integral aspect in this immersion and they mediate the interaction between the human and the material. The tools belong as much to the wood as they do to humans in the sense that the tools become--instead

of merely tools to transform the wood to suit any intention—tools towards discovering the nature of the material.

In the Japanese context, aided by the tool, the expression of the material is varied and extended but its nature is never defiled. The Ise Shrine is an illuminating example in this regard (fig. 18 and 19). Ritually dismantled and rebuilt approximately every twenty years, the Shrine can be regarded as being both old and new. While the primitive form of the building has been faithfully maintained, over time the construction became highly refined: "over the years some of the original rugged simplicity disappeared, replaced by meticulous detailing, extreme precision, and highly finished surfaces" (Carver, 1984, 13).

Again, the expression may vary between the stoic, pristine Ise shrine at one extreme and, at the other, the Toshogu Shrine at Nikko, "a riot of polychromy and sculpture that covers nearly every inch of available surface" (Horton, 1983, 9). Even though the expressions of the unadorned and overly decorated forms are irrefutably different, they are still experientially wooden buildings, since wood is not a superficial material for adornment but that out of which both the form and the decoration are derived from.

A deep and sensitive understanding of the wood, towards which this thesis can be regarded as an incremental step, is manifested by traditional Japanese architecture. The appreciation of Japanese sense of form and space is not possible without at least implying the use of wood. Perhaps a single building can be explicated in purely formal terms, but this would be abstract in that the description will not evoke any sense of a particular place and the character of the building.

That the Japanese have a deep understanding of wood as a building material is revealed in their buildings whose compelling beauty leads one scholar to observe: "For the Japanese, wood is never an inert material material. In his hands it acquires new vitality, it is cut and joined, as its nature demands, without nails, without glue and without paint" (Blaser, 1963, 9).

In the Ise Shrine, there are two contrary attitudes in the use of wood (fig. 18 and 19). On the one hand, in the shaping and treatment of the wood which through perfection approaches the ideal, one sees a veneration of the material. The care and perfection involved in the building indicates a desire to build a permanent place. On the other hand, one finds the main columns are directly buried into the ground thus undermining the life of the building. Further the shrine is regularly rebuilt every twenty years—a process that ensured the survival of building skills through the generations while periodically sacrificing the precious shrine itself. The bipolarity in the treatment of wood represents the understanding of the material as well as the Japanese spiritual sensibility that believes in the evanescence of all things.

RESEARCH DIRECTIONS

The aim of the present study has been to interpret one Japanese vernacular house using the three archetypes of Thiis-Evensen as ordering guide and through this understand the nature of wood as a building material, specifically as it influences the expression of the overall form. These interpretations were followed by reflection on the nature of wooden floor, wall, and roof, as these were suggested by The Yoshimura house and also other significant examples of Japanese architecture upon which Yoshimura's interpretations shed a new light.

The final question in this particular interpretive process has to do with the expression of wooden building's form. Regardless of stylistic variations what essential aspects characterises wooden architecture? Some aspects such as the linearity of wood that imparts a strong geometric order and objective presence to the wooden dwelling and wood's rejection of moisture of the ground as a source of expression are realized through the study.

The next step in furthering this research would be to interpret more wooden buildings particularly differentiated by stylistic and regional attributes. These, and interpretations by other interested scholars would be necessary to eventually corroborate the observations presented in this thesis. And most of all, since such a study emphasises the experiential

qualities, interpretations that are based on actual experiences of buildings are needed.

FIGURES

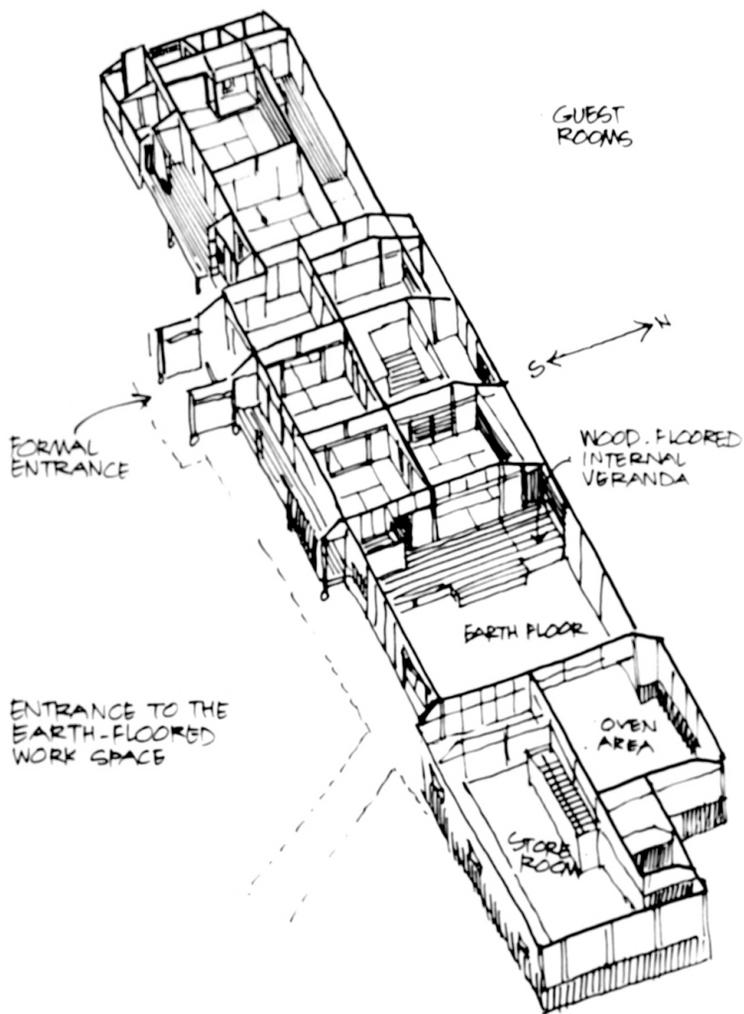


Figure 1: Yoshimura House—Isometric View showing layout of rooms
Redrawn from Nishi & Hozumi 1985, fig. 155.

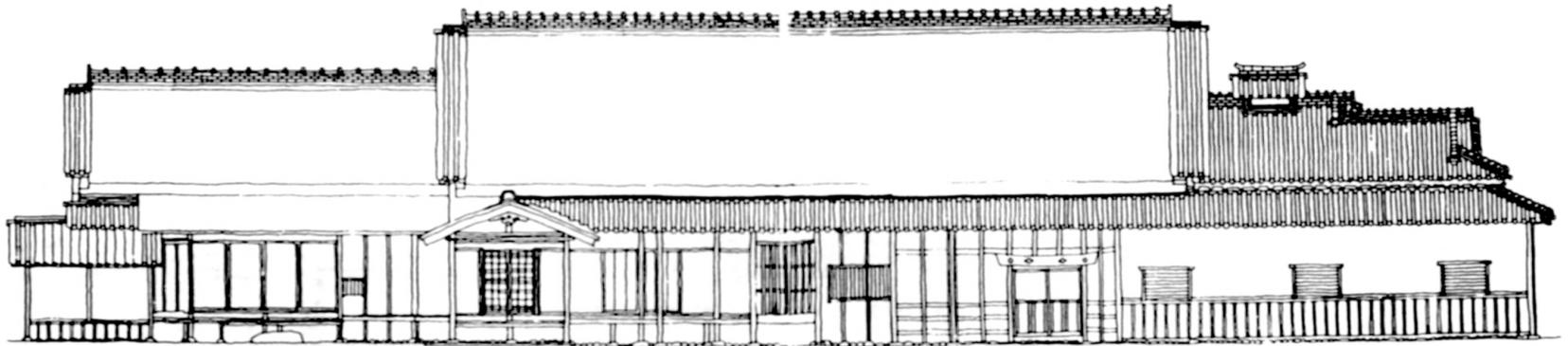


Figure 2: Yoshimura House—South Elevation
Redrawn from Blaser 1963, 100-101.

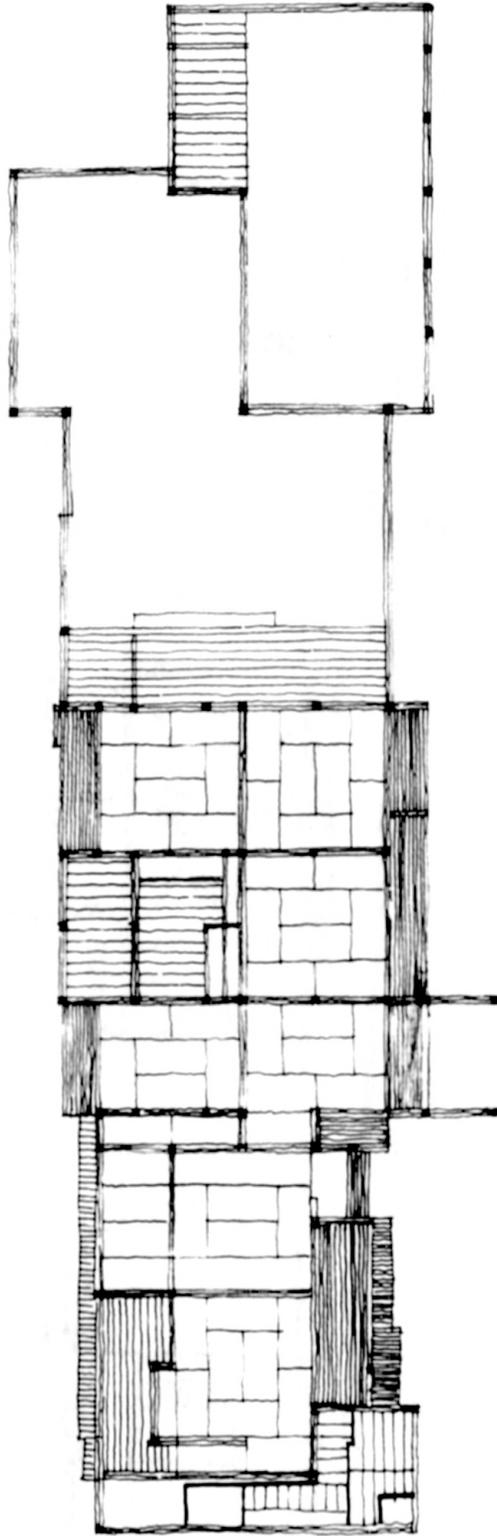


Figure 3: Yoshimura House—Floor Plan
Redrawn from Blaser 1963, 99.

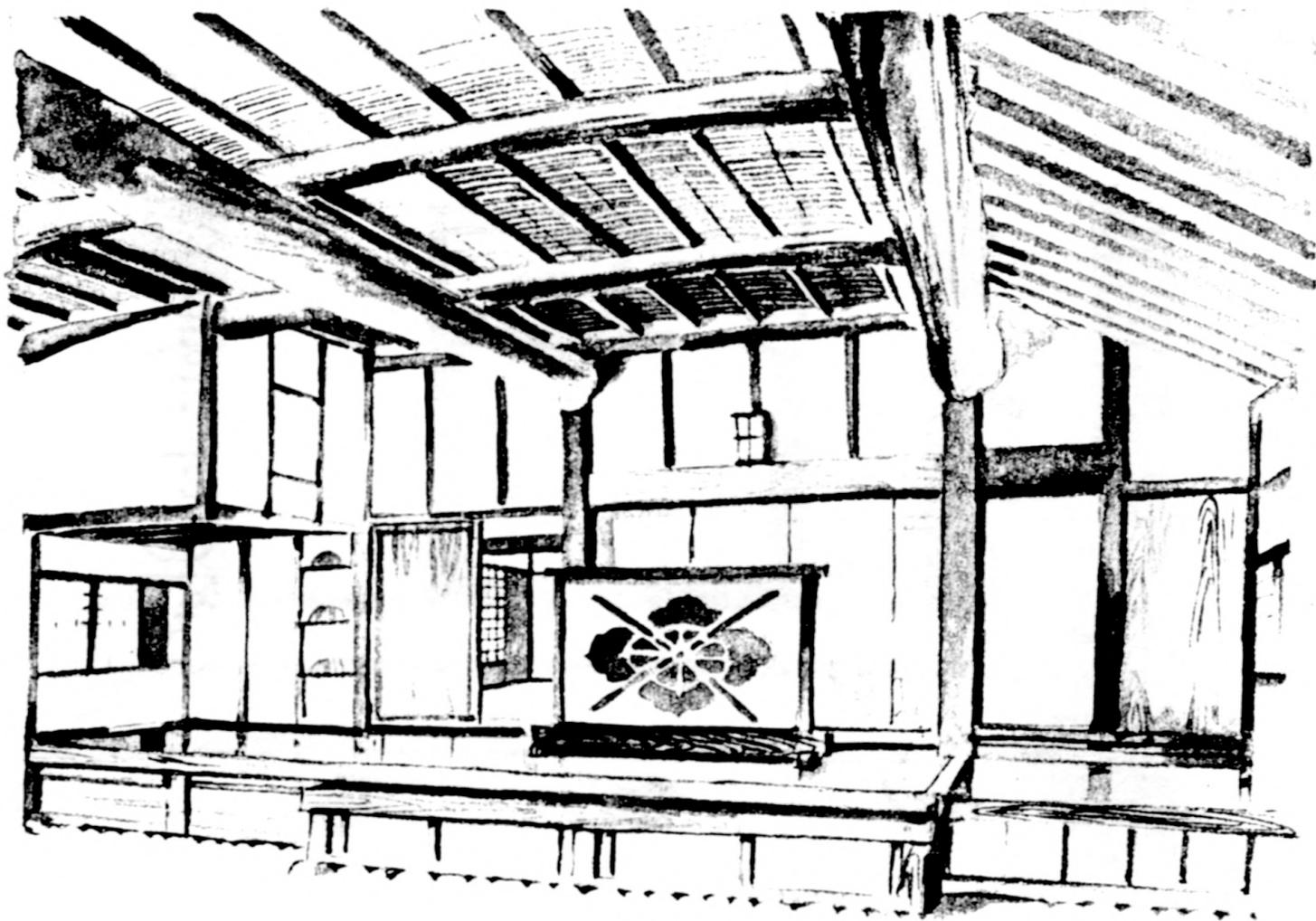


Figure 4: Yoshimura House—Earth-floored Work-space
and Internal Verandah looking west
Redrawn from Nishi & Hozumi 1985, fig. 156.

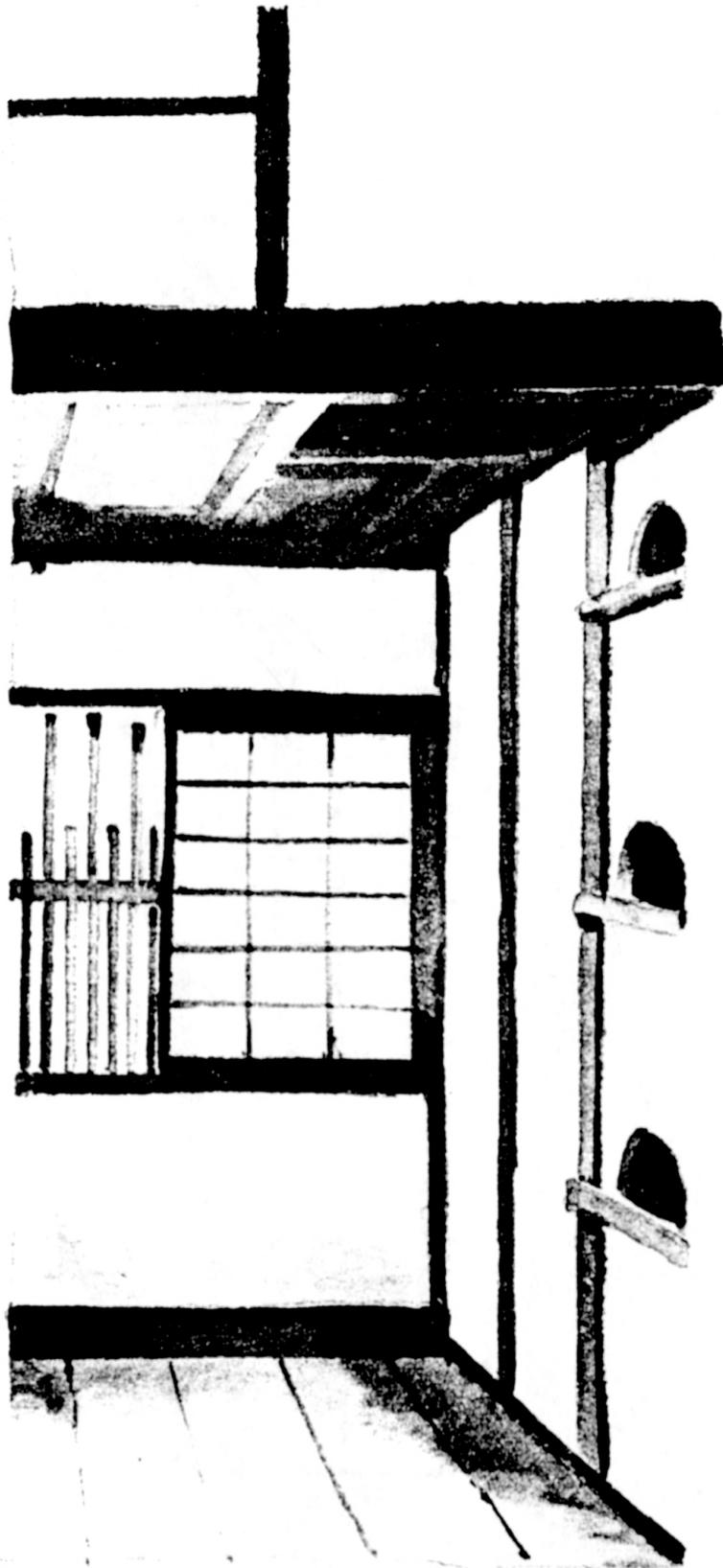


Figure 5: Yoshimura House—Internal Veranda;
Ladder to the Servant's Room
Redrawn from Blaser 1963, 110.



Figure 6: Yoshimura House--The Southern Approach;
Path and Doorway leading to the Earth-floored Work-space
Redrawn from Carver 1984, 111.



Figure 7: Yoshimura House—Interior Guest Rooms with Straw Floor Mats; Sliding Partitions set in grooves in floor and beams above
Redrawn from Carver 1984, 119.



Figure 8: Yoshimura House—Southern Facade:
'Skeleton on In-fill Wall'
Redrawn from Carver 1984, 113.

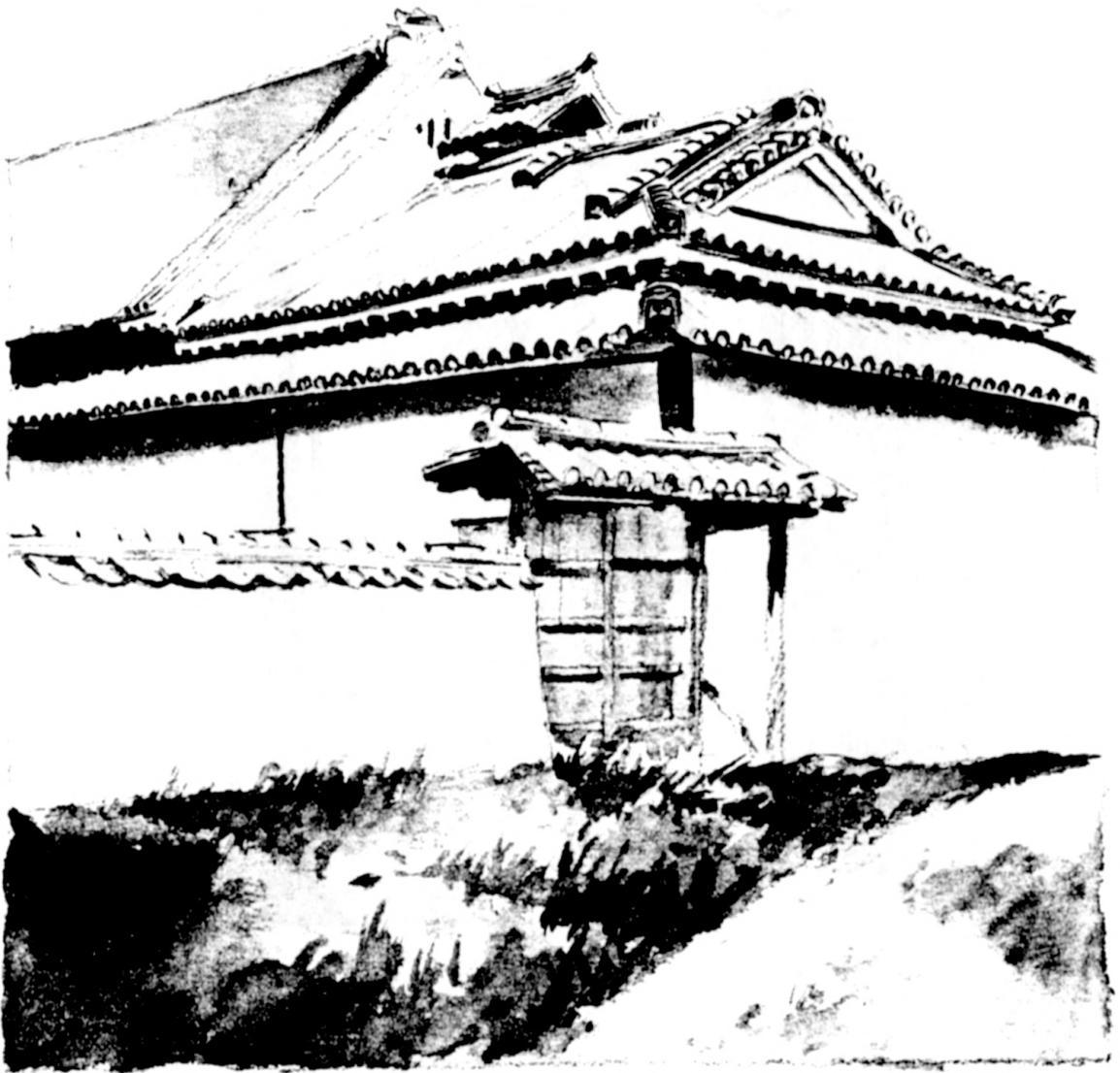


Figure 9: Yoshimura House--The Eastern End of the House
The solid and enclosing walls of the store room
and the tiled roof above
Redrawn from Blaser 1963, 98.

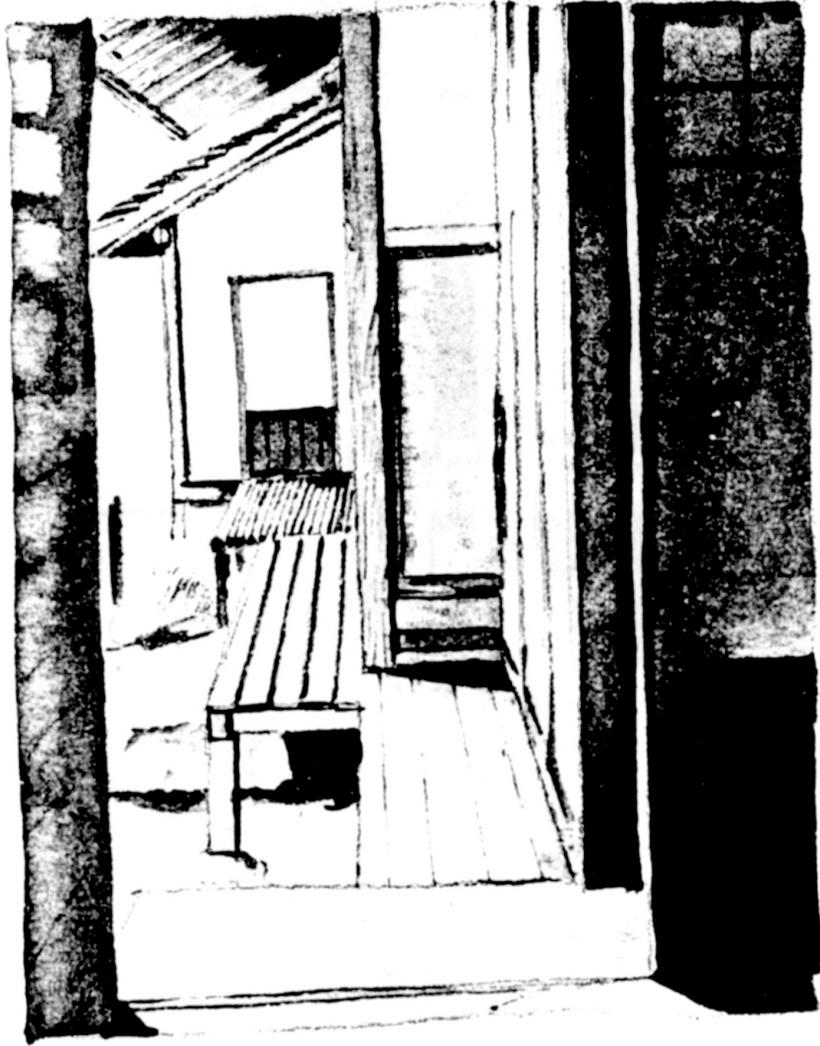


Figure 10: Yoshimura House—External Veranda Leading to Toilet
Redrawn from Carver 1984, 118.

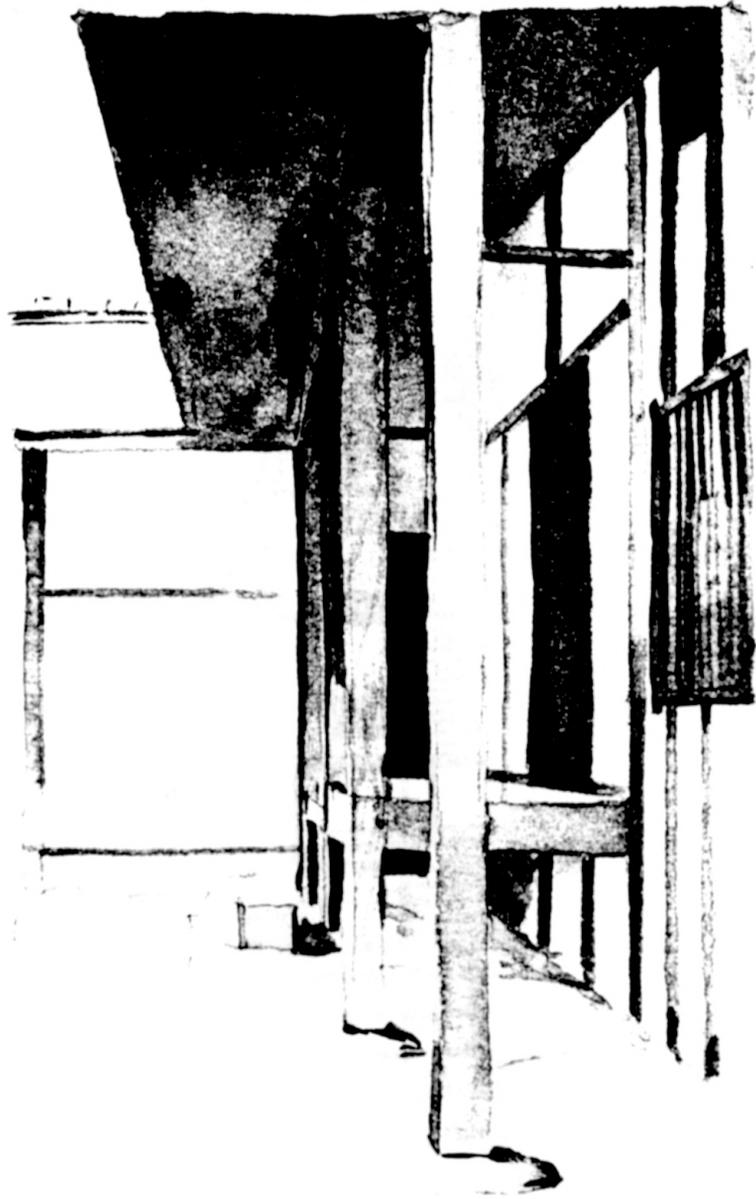


Figure 11: Yoshimura House—Southern Veranda; Detail
Redrawn from Blaser 1963, 106.



Figure 12: Yoshimura House—Southern Facade; Looking East
Redrawn from Blaser 1963, 95.

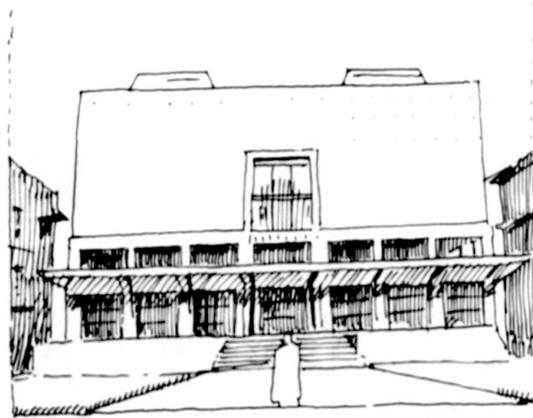


Figure 13: Kunstnernes hus—Artist's House in Oslo
by G.Blackstad and H.Munthe-Kaas
Redrawn from Thiis-Evensen 1987, fig. 171.

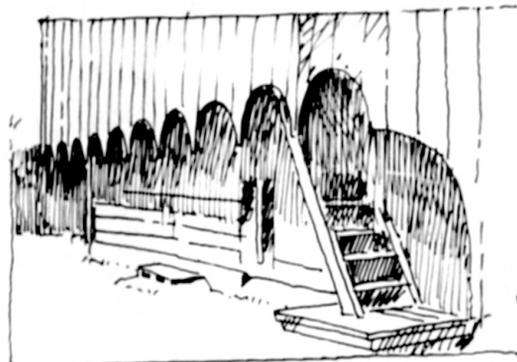


Figure 14: Image of a Norwegian Folk Dwelling
Redrawn from Thiis-Evensen 1987, fig. 170.

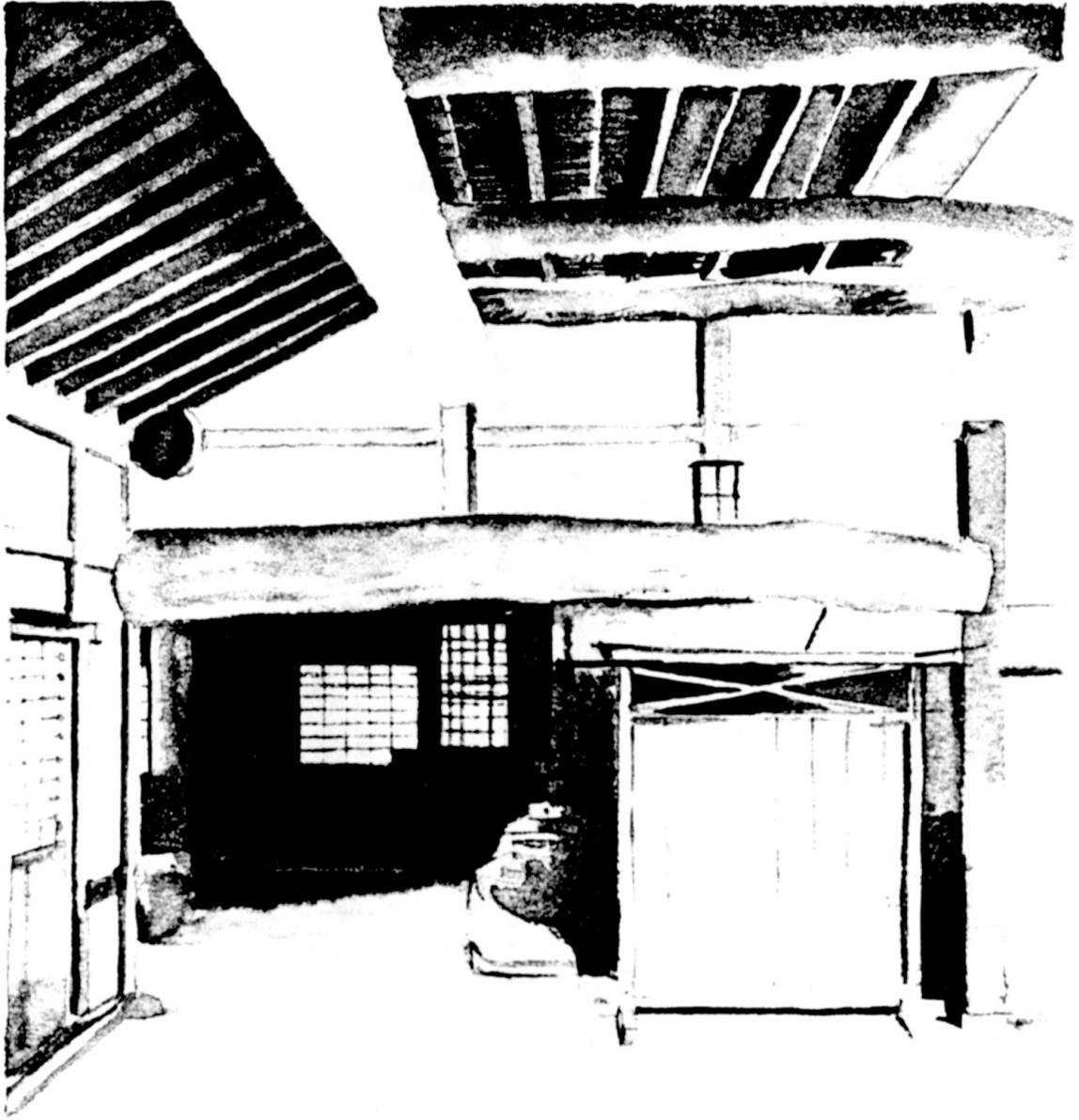


Figure 15: Yoshimura House—Earth-floored Work Space
Looking east with the kitchen in the background
Redrawn from Blaser 1963, 109.

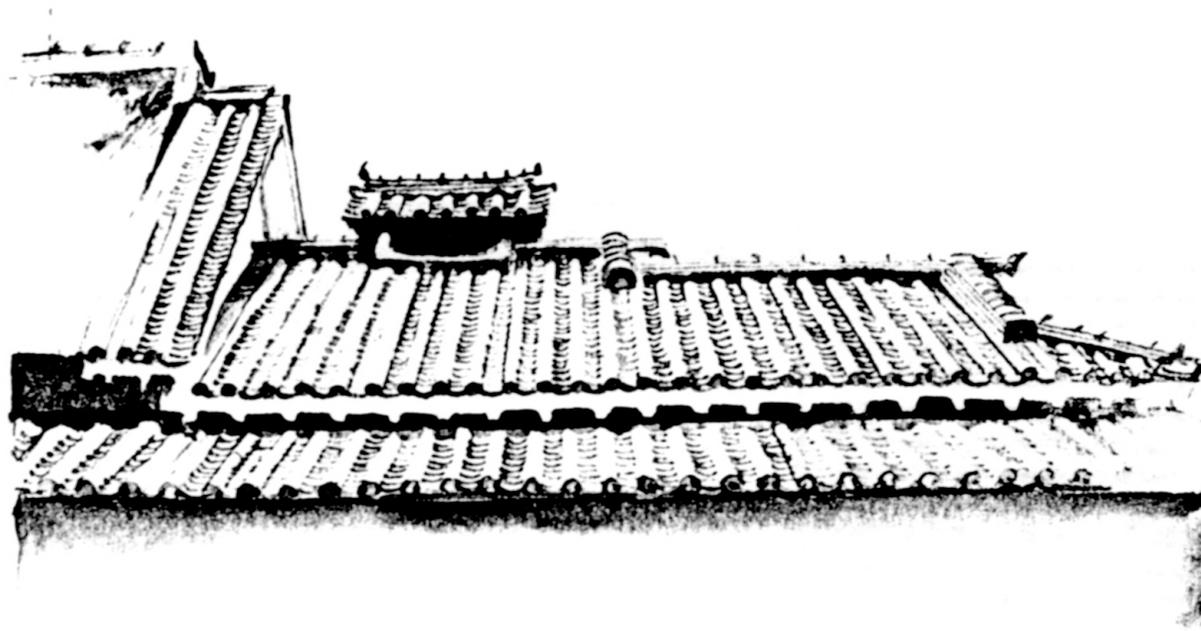


Figure 16: Yoshimura House—Tiled Roof over
Eastern End of the House
Redrawn from Carver 1984, 110.

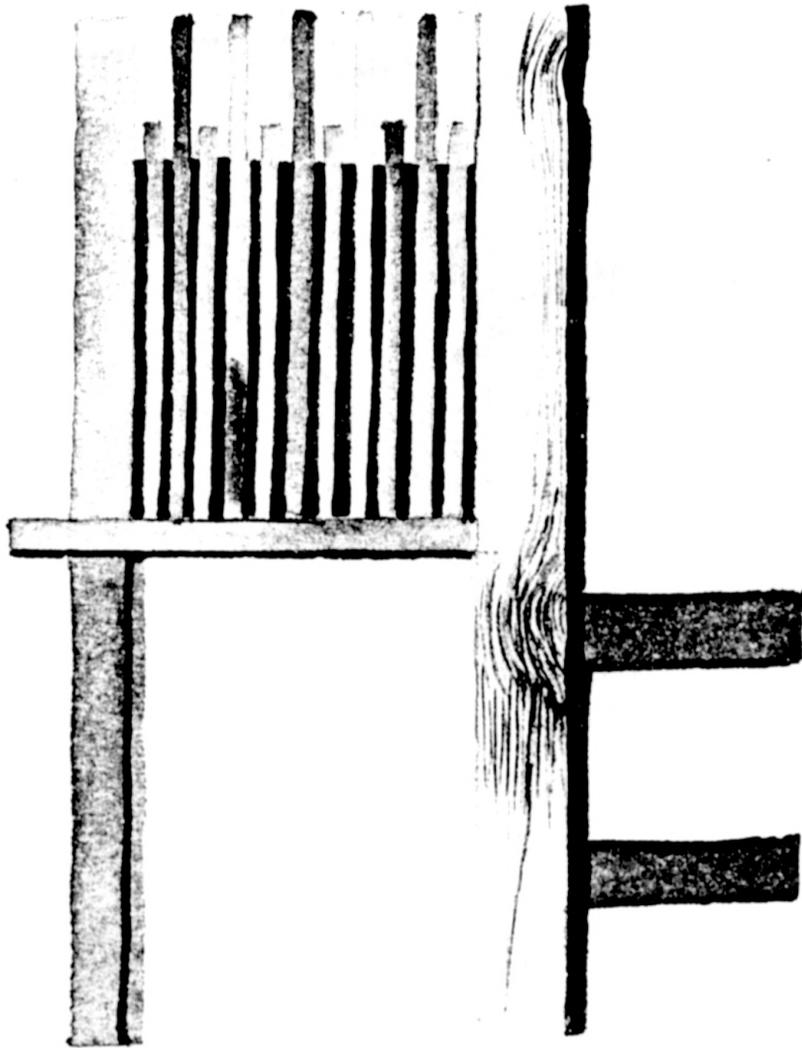
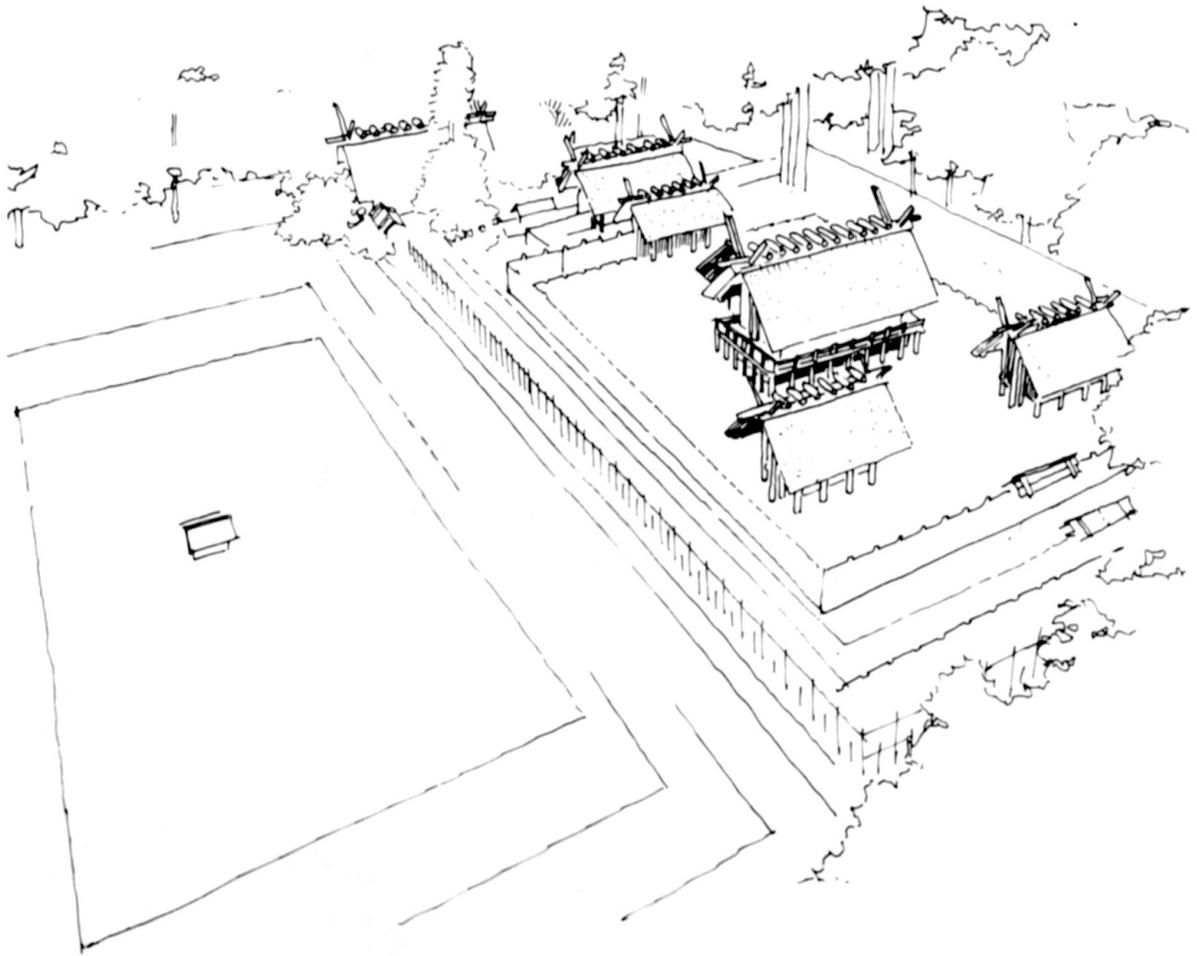
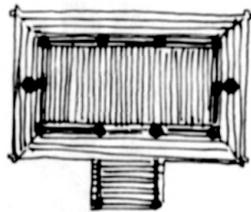


Figure 17: Yoshimura House—Window and Wall Framing; Detail
Redrawn from Carver 1984, 120.



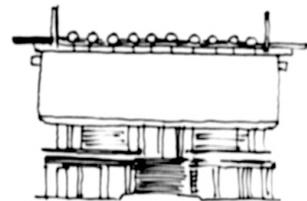
AERIAL VIEW OF THE INNER SHRINE



PLAN



ELEVATION: GABLE END



ELEVATION: SIDE

Figure 18: Shinto Shrine at Ise

Redrawn from Nishi & Hozumi 1985, fig. 70 and 73.



Figure 19: Ise Shrine—Approach
Redrawn from Carver 1984, 17.

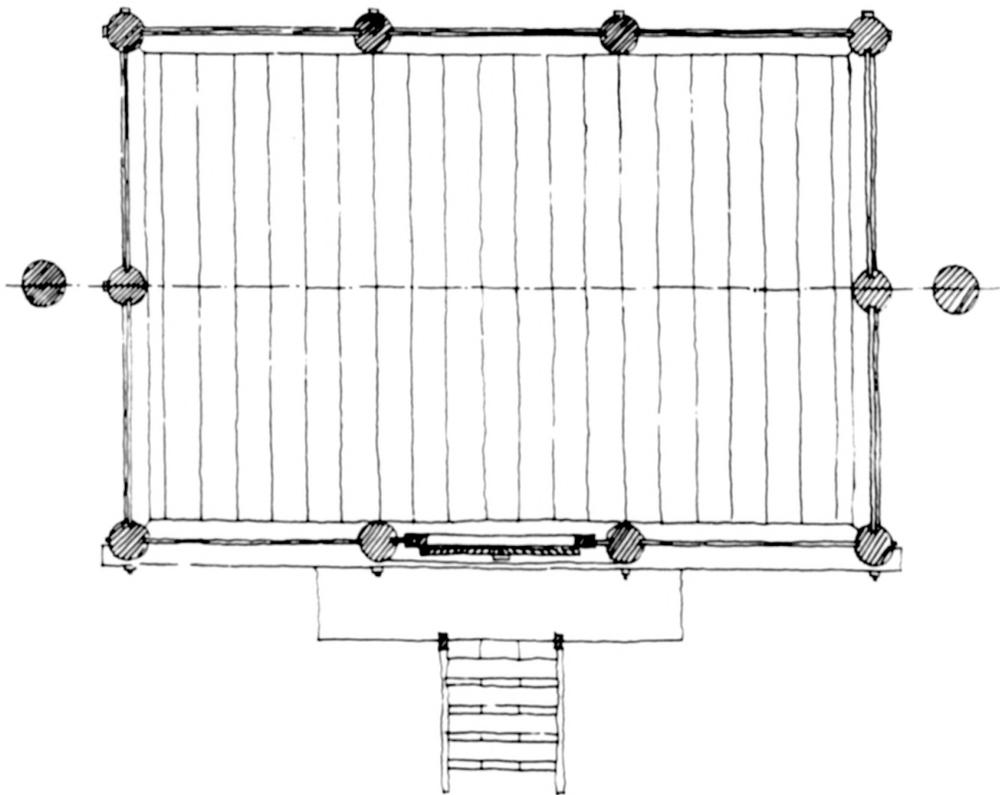


Figure 20: Treasury House, Ise Shrine—Floor Plan
Redrawn from Blaser 1963, 27.

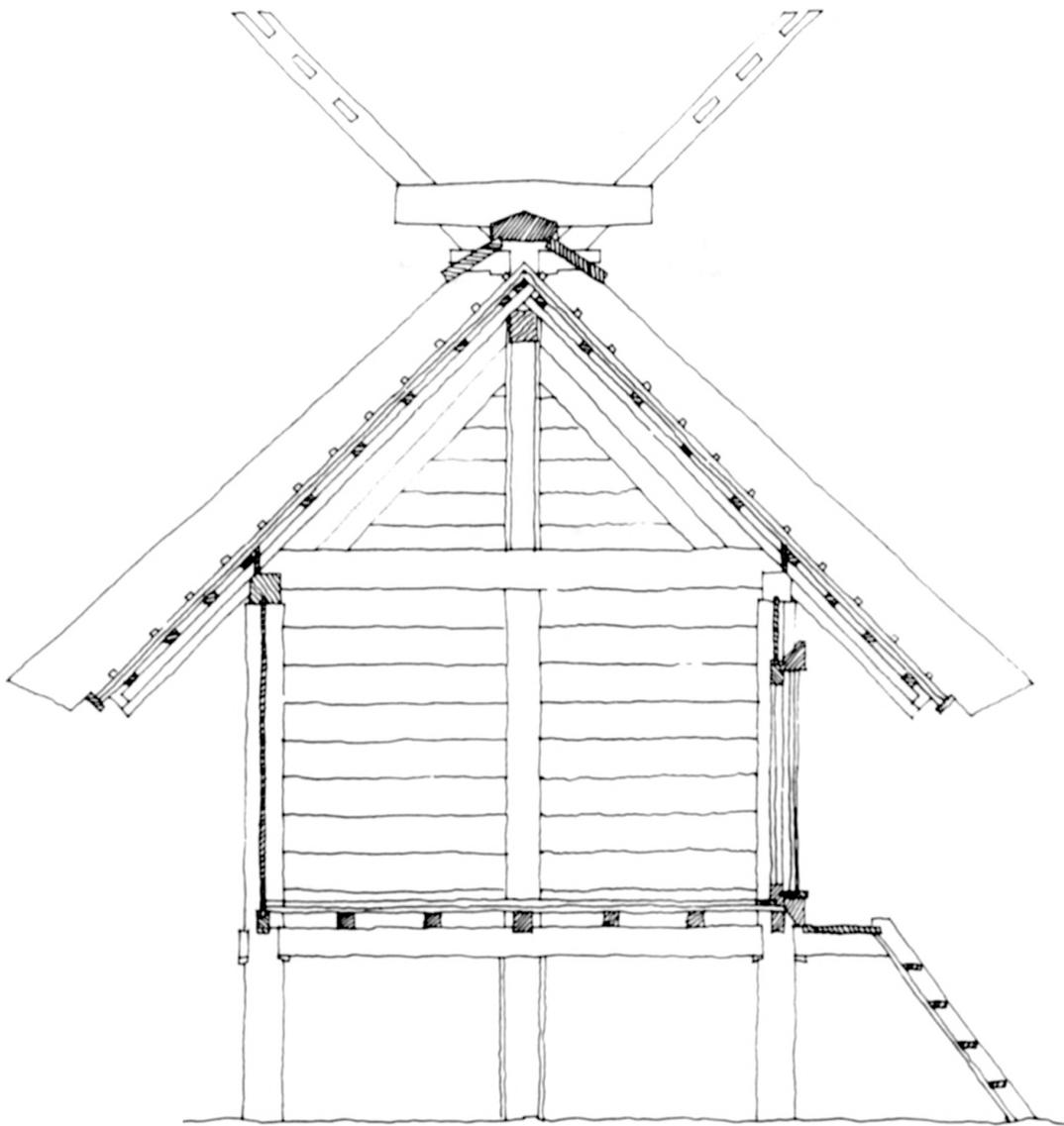


Figure 21: Treasury House, Ise Shrine—Cross Section
Redrawn from Blaser 1963, 28.

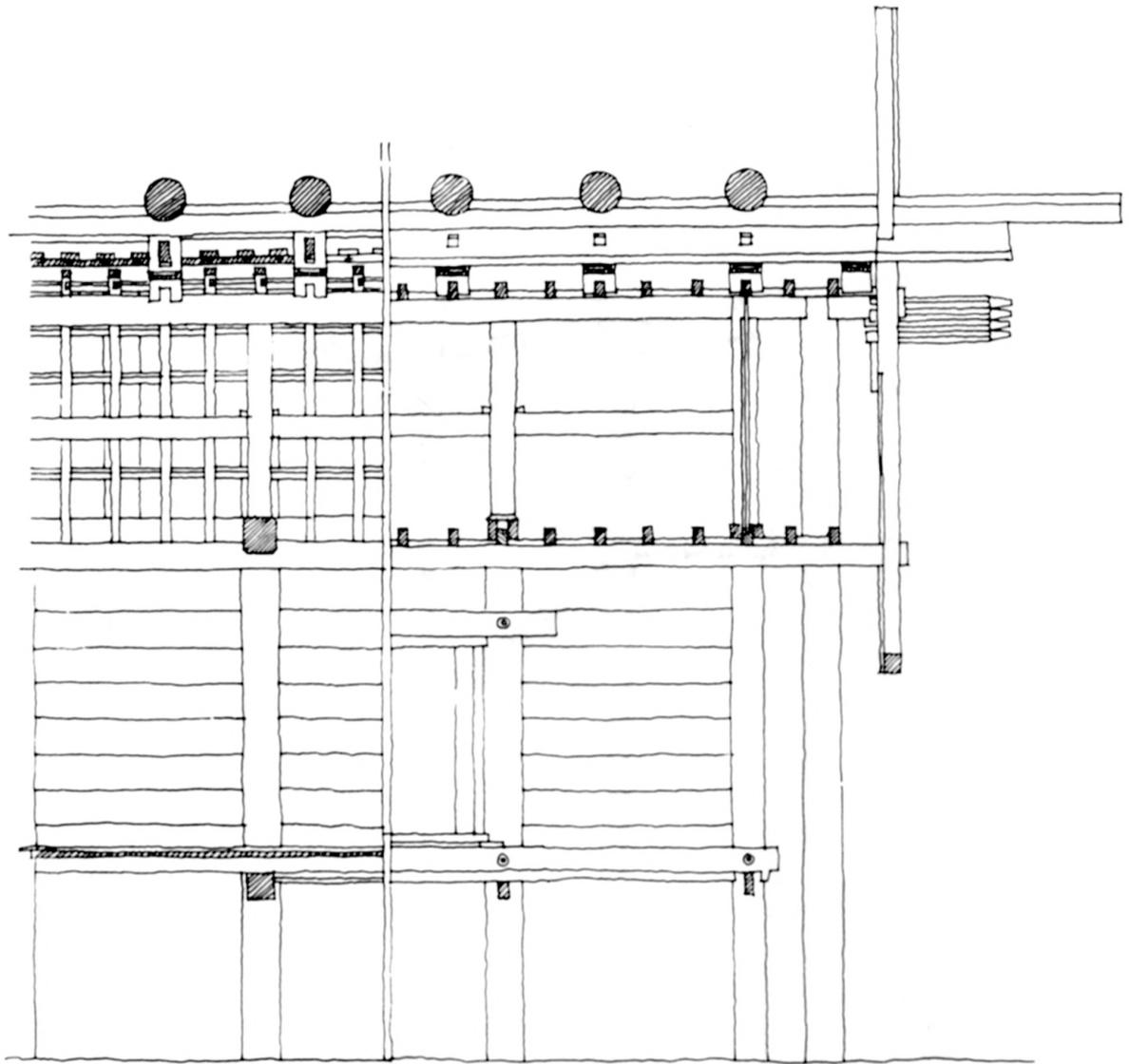


Figure 22: Treasury House, Ise Shrine—Partial Long Section
Redrawn from Blaser 1963, 29.



Figure 23: Shokin-Tei Tea House, Katsura Complex
External Veranda
Redrawn from Blaser 1963, 147.



Figure 24: Katsura Imperial Villa at Kyoto
Detail of Floor Boards
Redrawn from Blaser 1963, 58.

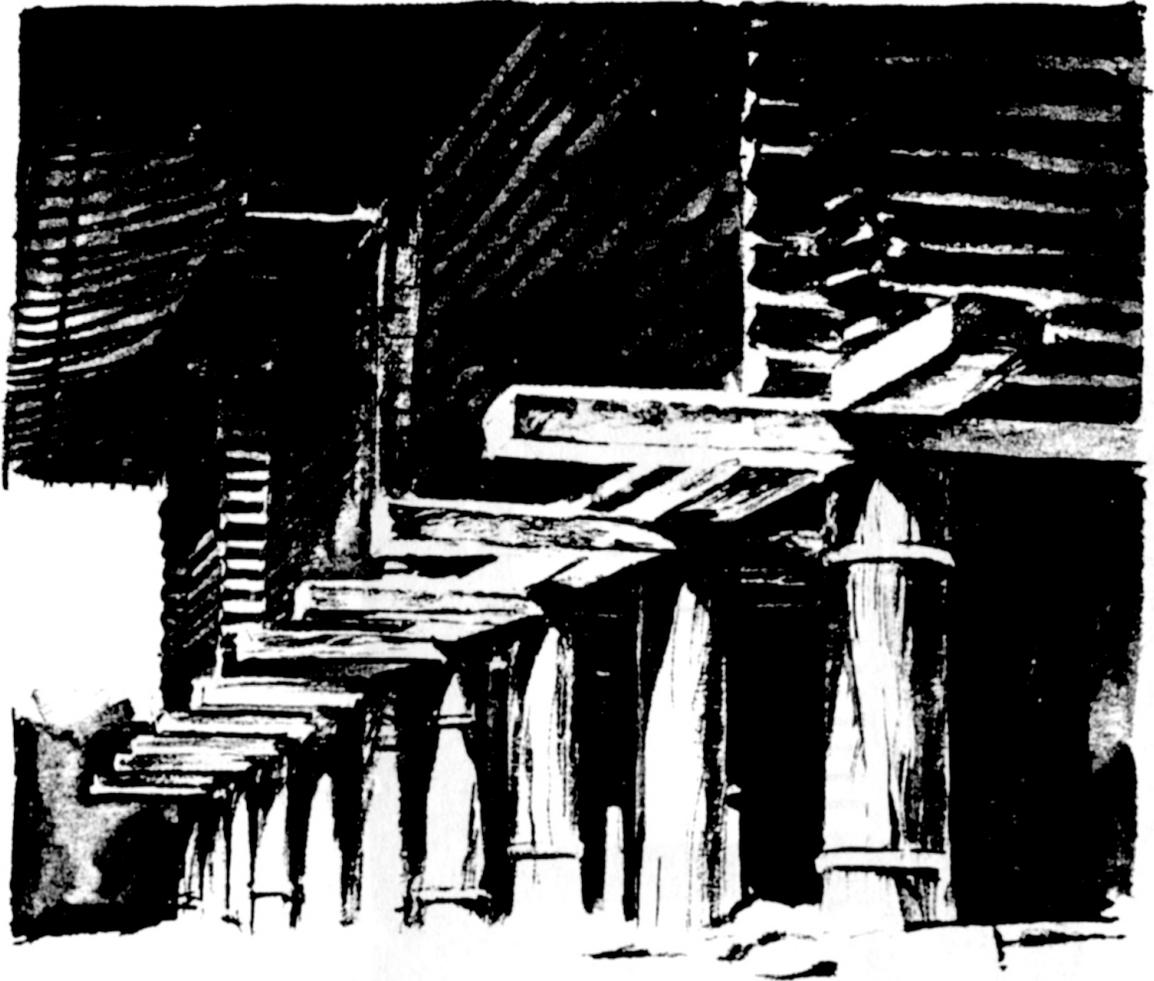


Figure 25: Shosoin Treasure House at Nara--Detail
Redrawn from Carver 1984, 38.

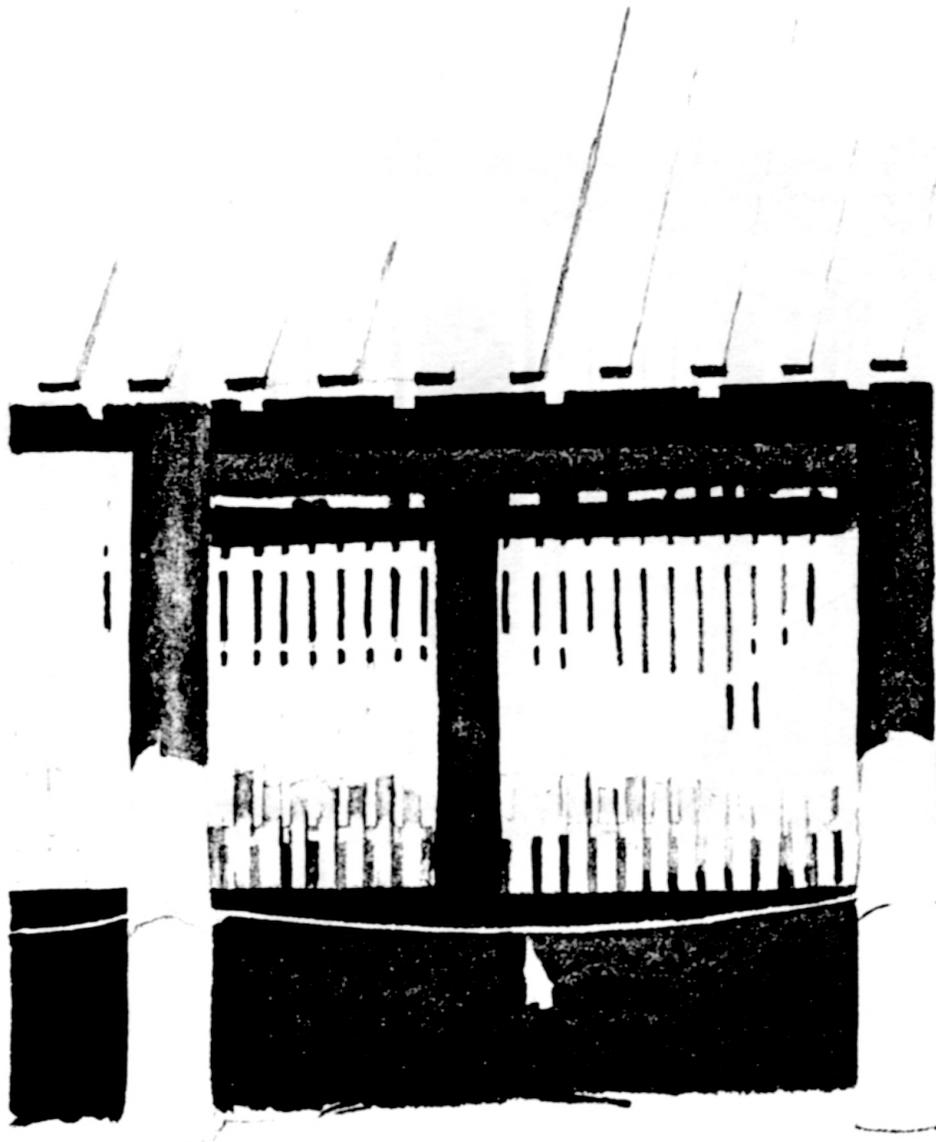


Figure 26: Ise Shrine—Detail of an Outer Pavilion
Redrawn from Carver 1984, 29.



Figure 27: Vernacular Wooden Building—Granary, Gluringen
Valais, Austrian Alps
Redrawn from Futagawa 1983, 70.

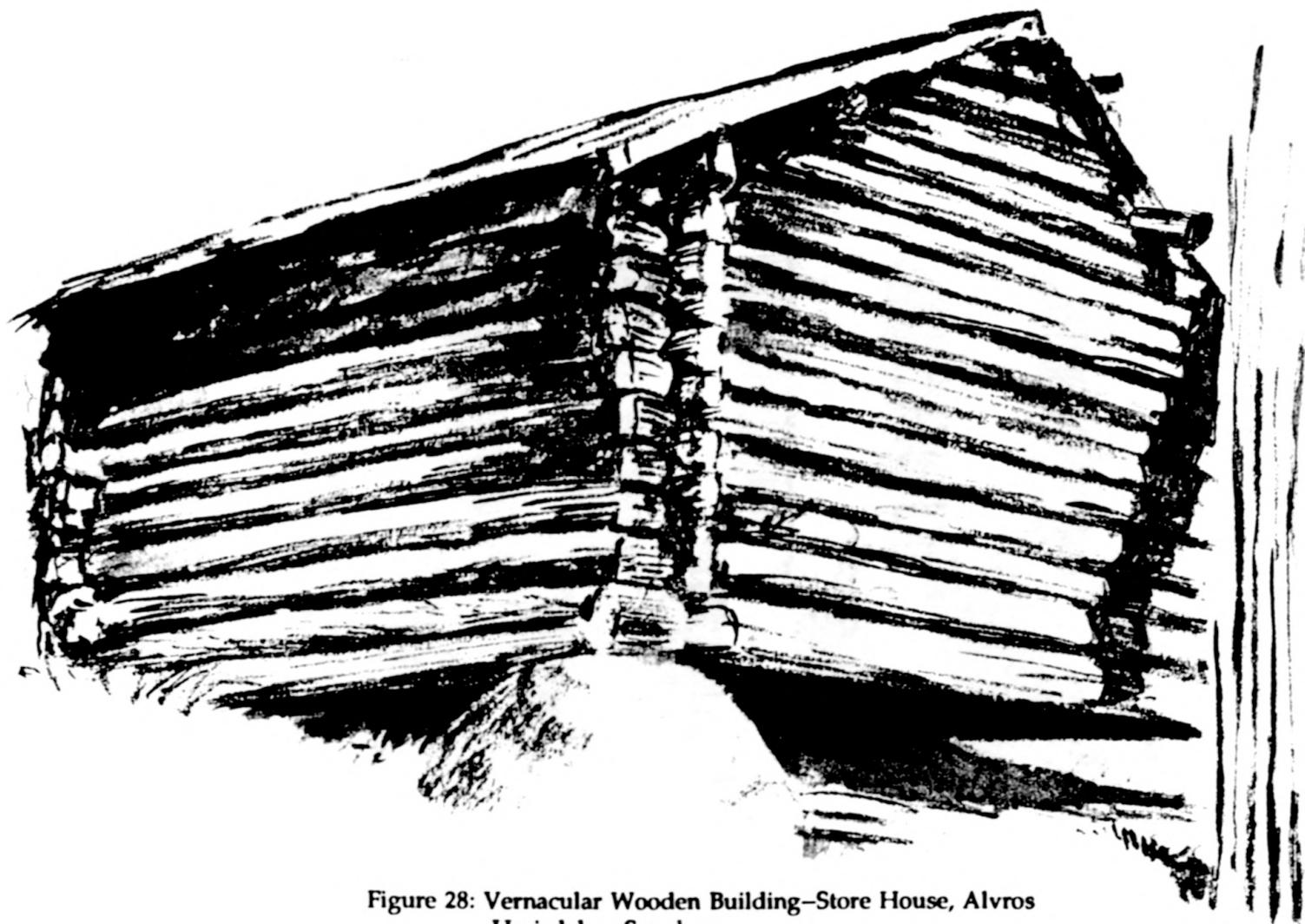


Figure 28: Vernacular Wooden Building—Store House, Alvros
Harjedalen, Sweden
Redrawn from Futagawa 1983, 223.



Figure 29: Log Wall Construction--Detail
Redrawn from Blaser 1963, 42.

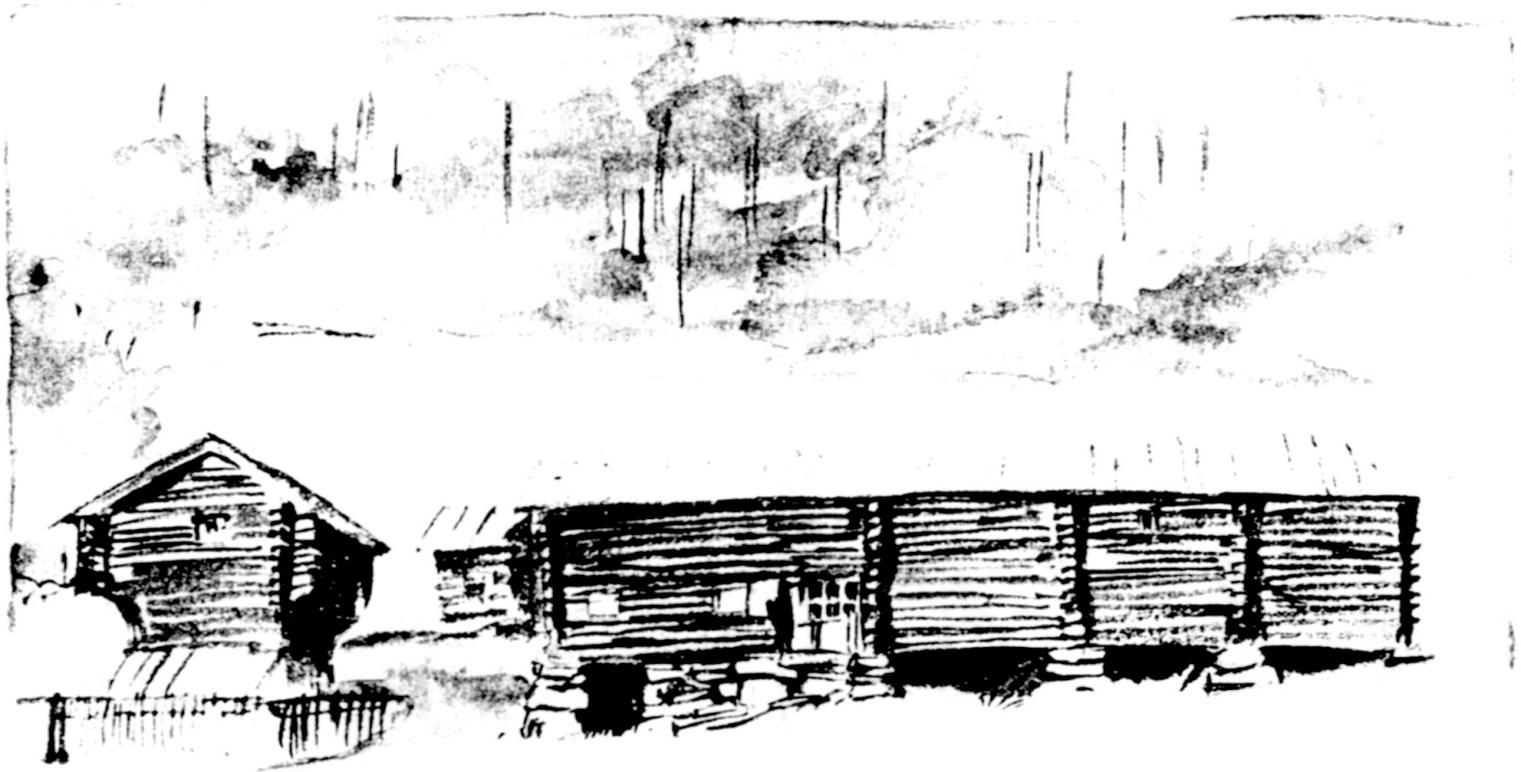


Figure 30: Vernacular Wooden Building—Farm Buildings
Al Hallingdal, Norway
Redrawn from Futagawa 1983, 245.

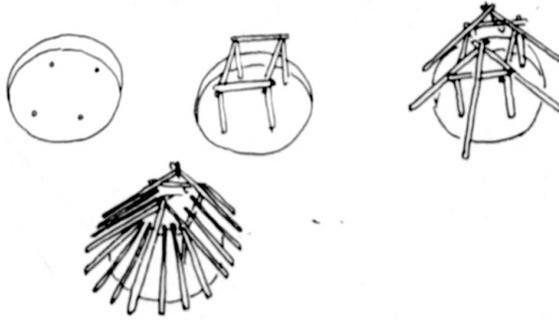
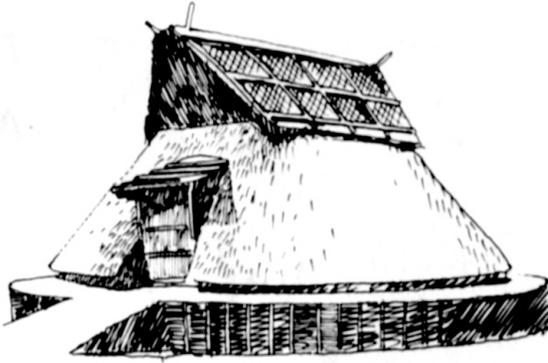


Figure 31: Restored Yayoi Dwelling--A Primitive Japanese House
Redrawn from Nishi & Hozumi 1985, fig. 95.



Figure 32: 'The First Dwelling' drawn by Viollet-le-Duc
Redrawn from Thiis-Evensen 1987, fig. 450.



Figure 33: Hoiruchi House—Roof Structure
Redrawn from Futagawa 1983, 107.

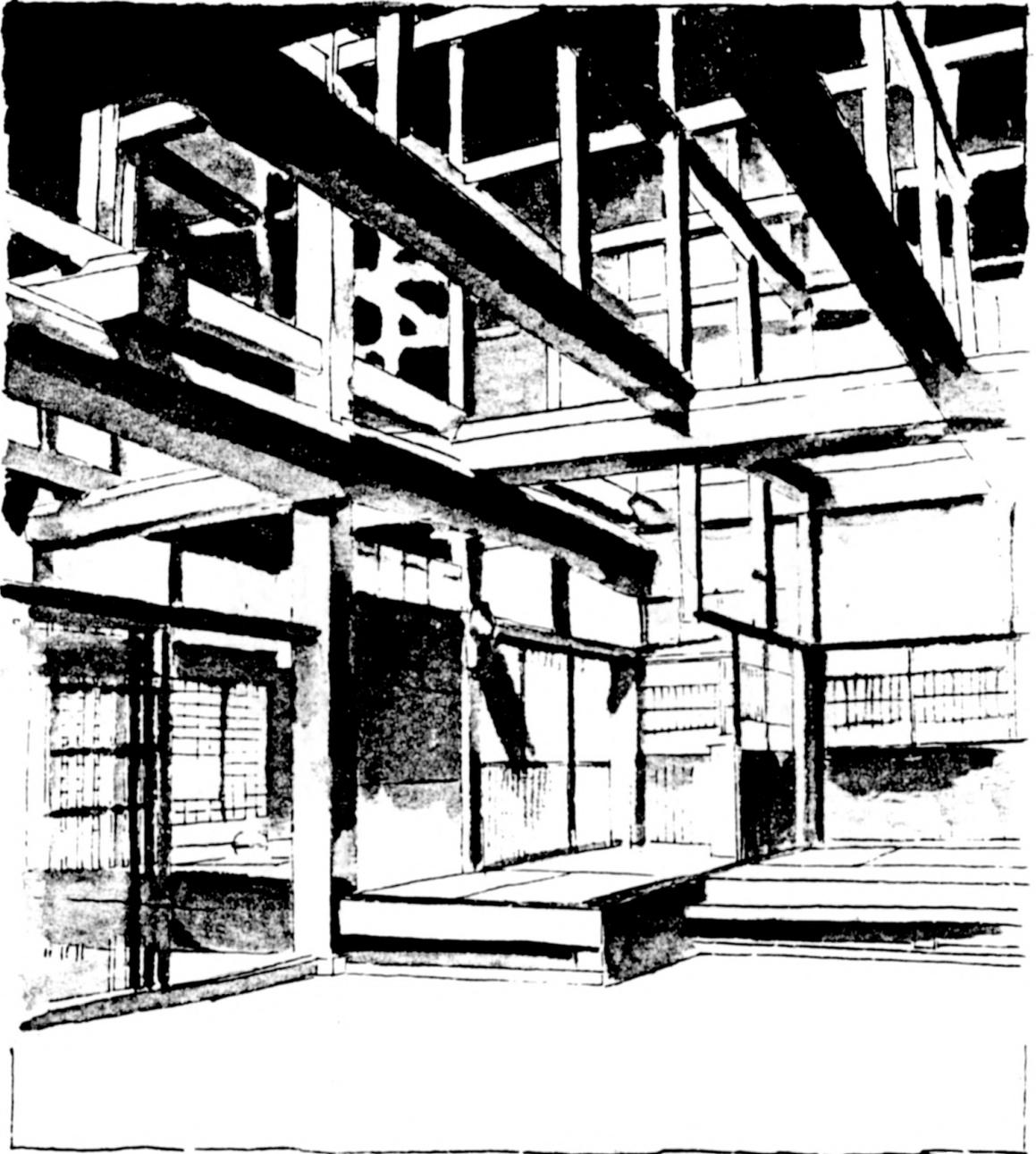


Figure 34: Yoshijima House—Earth-floored Space and
Main Living Area
Redrawn from Carver 1984, 153.

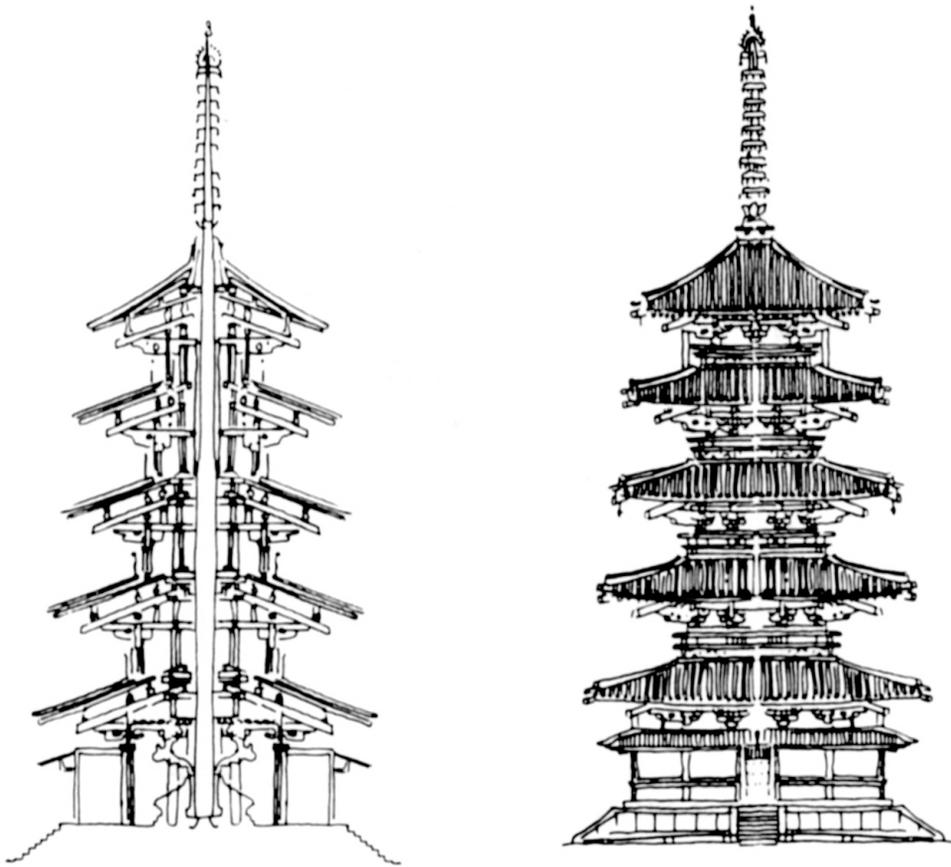


Figure 35a and 35b: Five-storey Pagoda, Horyuji
Section and Elevation
Redrawn from Nishi and Hozumi 1985, fig. 1.

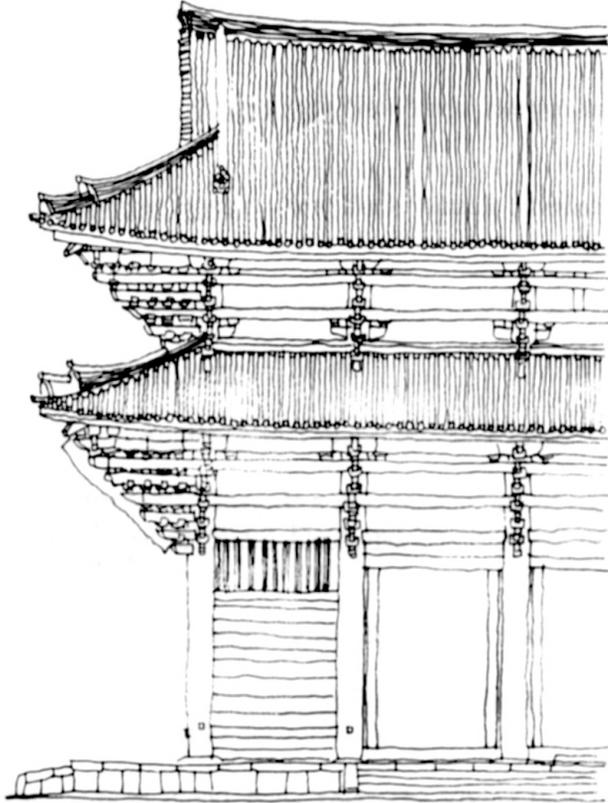


Figure 36: Great South Gate, Todaiji—The Great Buddha Style
Redrawn from Nishi and Hozumi 1985, fig. 20.

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**TOWARD A PHENOMENOLOGY OF WOOD:
INTERPRETING THE YOSHIMURA HOUSE,
A JAPANESE VERNACULAR DWELLING,
THROUGH THIIS-EVENSEN'S ARCHITECTURAL ARCHETYPES**

by

MURALI RAMASWAMI
B.Arch., Madras University,
Madras, India, 1984

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ABSTRACT

This study uses Thomas Thiis-Evensen's Archetypes in Architecture (1987), to explore the nature of wood as a building material, specifically focusing on the relationship of wood to architectural form. The Yoshimura house, a Japanese vernacular dwelling, is the interpretive context and is examined in terms of Thiis-Evensen's architectural archetypes of floor, walls, and roof. The interpretations of the three elements are linked by demonstrating how wood contributes to the specific expressions of floor, wall and roof; and, more importantly to the dialectic between inside and outside.

Through interpreting the house on the basis of the three archetypes, it becomes possible to appreciate the form of the house both holistically and rigorously. While the examination of each of the three elements assures a rigor to the method, the common focus on how these elements sustain a specific inside/outside relationship binds the interpretations into a cohesive whole. The interpretations are grounded in commonly shared bodily experiences through which the expressive potentials of the architectural forms are recognized. Through this experiential orientation, the potential dangers of succumbing to either one's personal preferences alone or to a deterministic historic or theoretical explanation are averted.

In the Yoshimura house, the archetypal elements of floor, wall, roof are linked not only by their common function of delineating an interior space, but also by their use of wood, which imparts certain common qualities to the three elements. All the elements are expressive of a strong geometric order which emphasizes linearity, openness, and lightness.

This thesis concludes that architectural character is essential to imparting a collective sense of place and is inseparably woven into the making of a physical place. Materials hold meanings that are intersubjectively experienced across culture and history. The study argues that the nature of the construction material interacts with the formal aspects of a building, resulting in an overall architectural character. The study concludes that the design process best proceeds from an intimate understanding of materials and design and building processes. This harmonization of materials and design requires a study different from the common

technological perspective. The questioning of the nature of materials from an existential and experiential perspective is needed. This thesis is a start in that direction.