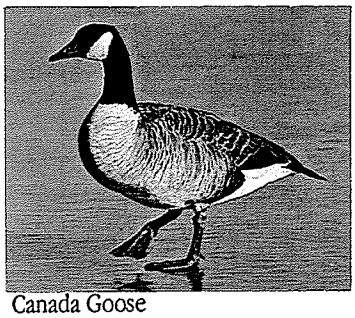

Canada Goose

March 19 new moon first day of spring *20* *21*

s u n r i s e 6 : 3 1 s u n s e t 6 : 4 3

LIVING WITH NATURE; Housing in a Natural Landscape

45

By Ian Corne, B.E.S.

A practicum report submitted to the Faculty of Graduate Studies in partial fulfillment of the requirements for the degree of Master of Landscape Architecture.

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LIVING WITH NATURE:

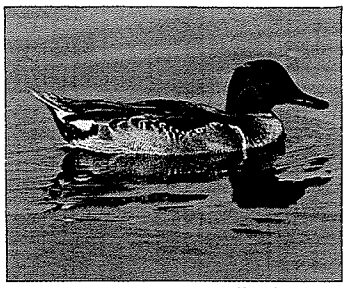
HOUSING IN A NATURAL LANDSCAPE

BY

IAN CORNE

A Thesis/Practicum submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements for the degree of

MASTER OF LANDSCAPE ARCHITECTURE



Mallard

March 25 *26* first quarter *27*

s u n r i s e 6 : 1 8 s u n s e t 6 : 5 2

ABSTRACT

LIVING WITH NATURE; Housing in a Natural Landscape

This practicum explores an alternative approach to housing; that of 'Living With Nature'. The ideological background of 'Living With Nature' is discussed with conclusion following. The ideology is then adhered to in the design and detailing of a single family detached house in a natural landscape. This process illustrates 'Living With Nature' in concept and design as well as in a brief description of construction and site maintenance techniques. Further, the design encompasses the natural site, the house and the constructed landscapes.

'Living With Nature' is a complex interaction and correspondence of many different ideas. It is respect for the land, recognition of the emotive qualities of site, and our relationship with the nature in everything around us; the human form included. It is an affinity with irregularity, variety, colour, texture, light and shadow. It is a delight in delicate details, intricacy of form and simplicity of expression. It is the economy and the diversity of the natural world. Above all, it is a reverence for nature, a commitment to the land, and a *unity* and *correspondence* of site, materials and occupant.

Dark - eyed Junco

April 1 2 full moon ○ 3

s u n r i s e 6 : 0 0 s u n s e t 7 : 0 5

ACKNOWLEDGMENTS

Thank you to my practicum committee; Professor Carl Nelson (chair), Professor Charlie Thomsen, and Professor Faye Hellner, for their enthusiasm and guidance.

A very special thank you to Ms. Anne Devlin, Student Advisor in the Faculty of Architecture, for keeping my academic standing afloat in the vast sea of Graduate Studies.

Thank you to Dierdre Harris for being there at the good old fashioned, 'last minute all-nighter' (the last one ever)!

Thank you to my family for all the love (and time) "to do what it is I've got to do".

Thank you to my good friend Doug Shearer ("Hi, my name is Ian Corne and I am a Graduate Student at the University of Manitoba," "good for you" -click-) and the rest of my colleagues for the great times we have had together.

The biggest thank you goes to my beautiful wife Janet, for her patience, support and stellar grammatical skills throughout this whole procedure. I love you for thinking I am a 'genius' (it really helped).

Belted Kingfisher

April 9 *10* last quarter *11*

s u n r i s e 6 : 4 6 s u n s e t 8 : 1 5

A WORD ON FORMAT

An overriding principle of this practicum is to deal with the poetics of site; the intangible. These intangibles are represented throughout the document by a header of images, migration dates of local birds, dates when local flora can first be seen each spring, a lunar calendar and sunrise and sunset hours. Roughly one third of each page is devoted to this endeavor to emphasize its importance in 'Living With Nature'. The images provided are expressive of the beauty of nature which can be experienced at this site.

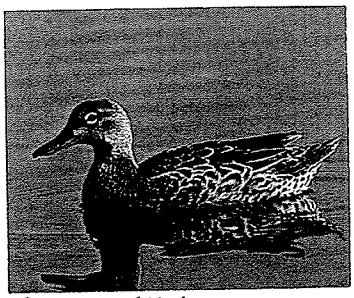
Each page is structured utilizing 'root two' geometry, which was used in the design of the house. The header portion of each page is organized as follows: the date is determined by the quarterly phases of the moon (a new phase on each page), with daily sunrise and sunset hours given. Images of the site, migrating birds and/or wildflowers for that approximate date are also shown.

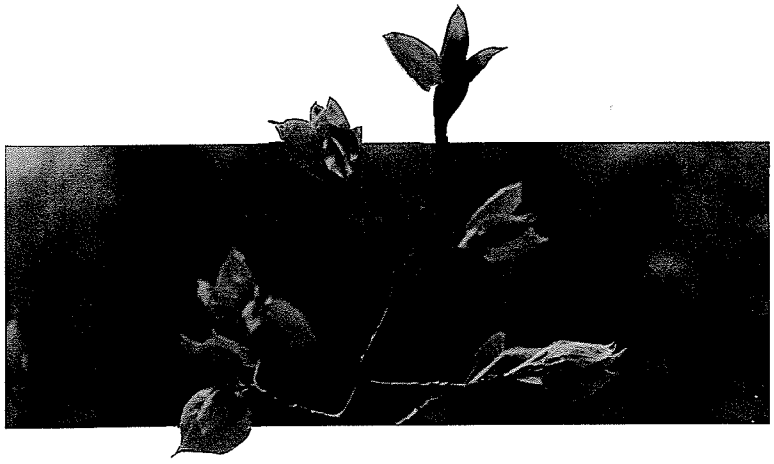
Yellow - rumped Warbler

April 15 *16* new moon *17*

s u n r i s e 6 : 3 1 s u n s e t 8 : 2 6

CONTENTS





Blue - winged Teal

April 24 first quarter 25 26

s u n r i s e 6 : 1 6 s u n s e t 8 : 3 9

Wild Blue Phlox

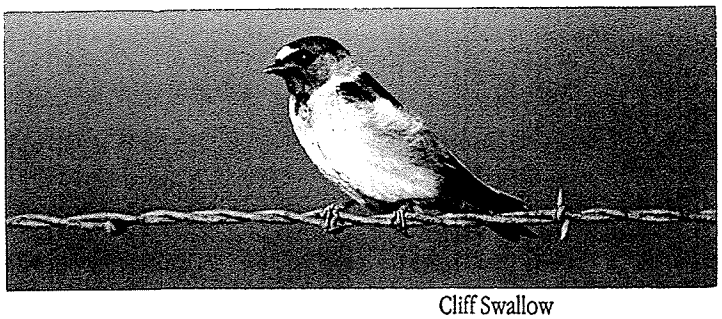
Chipping Sparrow

May 3 ◯ full moon

4 *5*

s u n r i s e 6 : 0 1 s u n s e t 8 : 5 1

LIST OF DESIGN DRAWINGS



Cliff Swallow

May 8 *9*

last quarter *10*

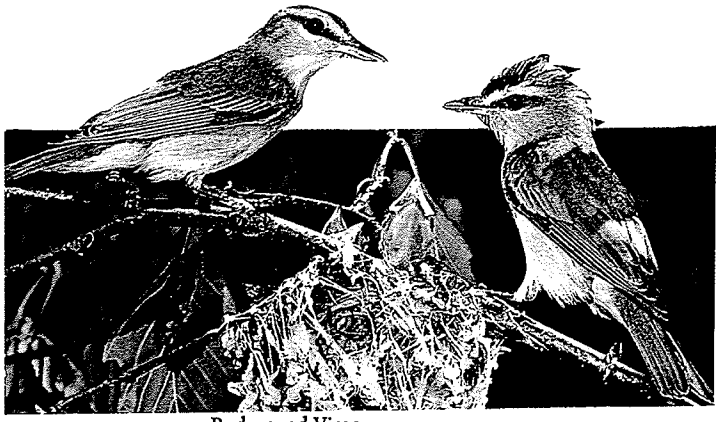
s u n r i s e 5 : 5 0 s u n s e t 9 : 0 1

1 INTRODUCTION

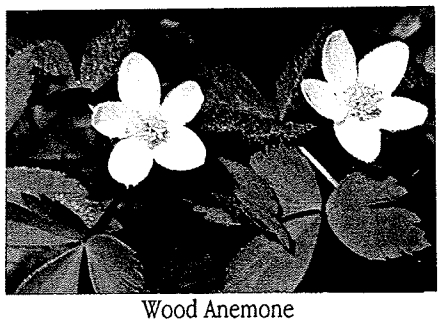
> "Beyond material efficiencies and simple conservation, our communities must express a reverence for the nature of a place. This reverence bespeaks a greater everyday understanding of our regions, its watershed, climate, geology, plants, animals and most of all, its activities - its life.... We need to move towards a sense that our place is a habitat within, rather than a settlement beyond the ecosystem." [1]

Having been confronted with the abuse of our planet, modern society has begun to evaluate the way in which we live and interact with our environment. We are experiencing a new awareness of nature and seek holistic solutions for the harm that has been caused. Globally we have learned that the removal of the rain forests alters our climate; locally we have come face to face with the pollution created by daily life. Although many positive steps have been taken towards improving our current situation, we must continue to improve our relationship with nature and the environment.

This practicum examines an alternative approach to housing; that of 'Living With Nature'. While taking advantage of the site's positive attributes, the challenge is to insert a single family dwelling, complete with all modern conveniences and some innovation, into a natural setting without damaging the setting. This will help to preserve the natural landscape, and will illustrate how we can live more closely with the land without making excessive demands on it. As we move towards increased environmental awareness, it has become a necessity to examine new ways of coexisting with the land, of touching it as lightly as possible, and appreciating it's natural beauty.



Red - eyed Vireo



Wood Anemone

May 16 *17* new moon *18*

s u n r i s e 5 : 4 0 s u n s e t 9 : 1 1

Conventional suburbs of single family dwellings continue to consume tracts of natural landscapes in the production of neighbourhoods and communities with little or no respect for the once wild land on which they stand. Historically, architects such as Frank Lloyd Wright sought to overcome this dilemma by creating new ideologies of design which were ultimately sympathetic to site.

As we approach a new century, building and living within the context of a natural site has been complicated by a new cultural focus on preservation and stewardship. House design addressing the regional landscape must now preserve the landscapes in which they sit, and in their everyday functioning, must tread as lightly as possible on the land. Although it appears a difficult task, it is important and beneficial to respect these new parameters. 'Living With Nature' represents a return to the land. By living closer to nature, an occupant's renewed understanding of natural processes will enable him/her to effect environmental changes which will benefit the entire globe.

Red - headed Woodpecker

May 23 *24* first quarter *25*

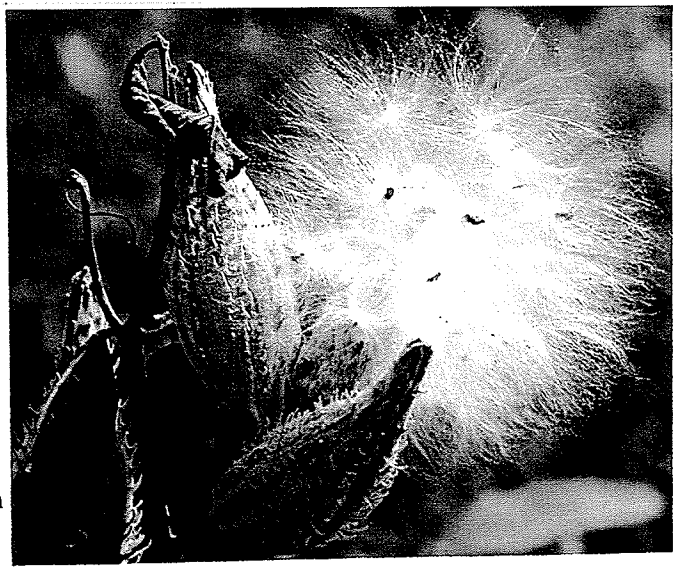
s u n r i s e 5 : 3 1 s u n s e t 9 : 2 2

2 PARAMETERS OF THE STUDY

This practicum will focus on the development of housing in nature.

The objectives of this study are to discuss 'Living With Nature' as an ideology, and to illustrate how it applies to the concept of housing in a natural landscape.

The anticipated product will be the design of detached condominiums for active, affluent empty nesters and retirees at the Fort Whyte Centre for Environmental Education in Winnipeg. (see appendix 8.1 'Retirement Housing at The Fort Whyte Centre')



Common Milkweed

June 1 ◯ full moon *3*

s u n r i s e 5 : 2 4 s u n s e t 9 : 3 0

3 LIVING WITH NATURE

The ideology of 'Living With Nature' as set out in this study has been influenced by experience, observation, education, and introspection. I have set forth four categories in an attempt to order some very elusive ideas: Stewardship of the Land, Poetics of Site, The Nature of Nature, and Natural Rhythm. The following ideas summarize an ideology which embodies 'Living With Nature'.

STEWARDSHIP OF THE LAND

As a lifestyle, 'Living With Nature' involves developing an affinity with the land and caring for the environment in our everyday activities. In terms of building, 'stewardship' holds the land as revered in every stage of development. It is the act of treading lightly in concept, design, construction and maintenance. In this case, 'Stewardship of the Land' holds a commitment to sharing the land with nature; to coexist as closely as possible, and to do as little damage as necessary to the land.

POETICS OF SITE

Upon closer examination of 'the land', any site can be quantified by soil types, herbaceous, shrub and tree species. In addition to this, every place, or site, has a definite 'feel', which can only be described as the 'poetics of site'. This strictly emotional method of quantifying a place is an extremely difficult task to undertake, yet once satisfactorily understood, the poetics of site can be a very powerful design tool.

Wild Rose

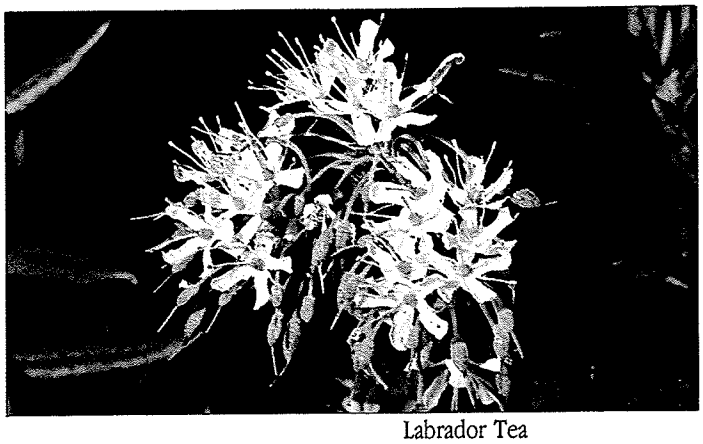
June 8 last quarter *9* *10*

s u n r i s e 5 : 2 1 s u n s e t 9 : 3 5

As outlined in the explanatory note on the format of this document, the header of each page expresses some of the essential components of 'Living With Nature'. These images begin to describe the poetics of site.

To better understand this notion, we can turn our attention to the painterly qualities of the Picturesque movement of the eighteenth century. The Picturesque "sought to bring landscape design closer to nature by restoring and preserving its inherent visual qualities defined as irregularity, variety and intricacy in form, colour and texture and their effects of light and shadow." [2] Drawing on the exploration of the landscape painters of the seventeenth century, the Picturesque relied, in theory, upon the painterly techniques of composition, effects of light and shadow, harmony of colour, and unity of character (all major components of poetics of site). This understanding of nature enabled the landscape designer to enhance, but not alter nature's inherent Picturesque beauty.

Within the realm of The Picturesque, architecture played a secondary, yet integral role. An overall scenic composition was the goal, and the architectural aesthetic chosen for a design was based upon its ability to compliment, and be in harmony with the character of its natural surroundings. In architectural practice, Picturesque villas and cottages were confined to the rural or suburban environment where small houses were viewed as integral parts of their setting. The simple forms, delicate details and subtle colour of the architecture expressed a delight in the natural landscape of which it was a part.



Labrador Tea

June 14 15 new moon 16

s u n r i s e 5 : 1 9 s u n s e t 9 : 3 9

THE NATURE OF NATURE

What the Picturesque designers understood as the painterly qualities of the landscape, Frank Lloyd Wright described as "the nature of Nature". [3] He viewed design as a holistic endeavor and his architecture expressed a unity of site, materials and occupant.

'Living With Nature' calls for this holistic approach; all aspects of design should be sympathetic to their intrinsic natural qualities. As discussed earlier, site has the most obvious contribution to make in this regard. The materials used for construction also play a large role in this holistic approach to design, as most materials have natural qualities which allow the occupant to have direct tactile contact and interaction with nature. Further, designing for the proportions and functioning of the human body speaks of nature on a most basic level.

NATURAL RHYTHM

This holistic approach to design was formalized by Andrea Palladio in his 1570's treatise *I Quattro Libri dell' Architecttura (The Four Books of Architecture)* . Palladio wrote: "Beauty will result from the form and correspondence of the whole, with respect to the several parts, of the parts with regard to each other, and of these again to the whole; that the structure may appear an entire and compleat body, wherein each member agrees with the other, and all necessary to compose what you intend to form." [4] Described as 'harmonic rhythm' this treatise was based on his study of the ancient Greeks, who believed that "Rhythm was a most general concept dominating not only Aesthetics but also Psychology and Metaphysics." [5] Further, Plato believed in the "concordance between the rhythm of the harmoniously balanced soul and the rhythm of the Universe." [6]

Northern Pitcher Plant

first day of summer
June 22

23

first quarter

24

s u n r i s e 5 : 2 1 s u n s e t 9 : 4 2

LIVING WITH NATURE

'Living With Nature' is, in effect, a complex interaction and correspondence of many different ideas. It is respect for the land, recognition of the emotive qualities of site, and our relationship with the nature in everything around us; the human form included. It is an affinity with irregularity, variety, colour, texture, light and shadow. It is a delight in delicate details, intricacy of form and simplicity of expression. It is the economy and the diversity of the natural world. Above all, it is a reverence for nature, a commitment to the land, and a *unity* and *correspondence* of site, materials and occupant.

Black - eyed Susan

full moon

June 28 *29* *30*

s u n r i s e 5 : 2 4 s u n s e t 9 : 4 1

4 DESIGN CONCEPT

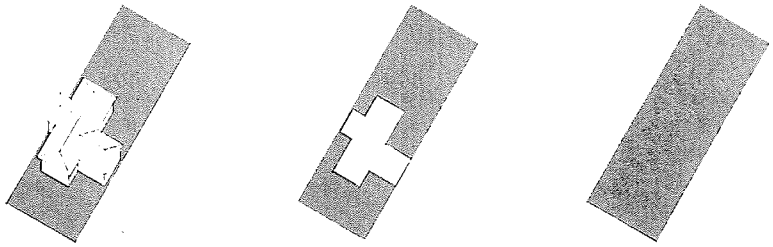
"[Nature] has rarely been conceived as a normal and essential element of the home environment. The reason for this (at least in the planning professions) is generally held to be that free growing, rather natural vegetation is 'architecturally' or aesthetically inappropriate to an urban or even suburban setting where hard formality and gardenesque landscapes are considered the norm. It has also been thought that nature-like landscapes are unable to survive intensive wear. Nature within a short step of the front door has been conceived as either undesirable or impossible to achieve." [7] It is the intent of this project to illustrate that nature within a short step of the front door is both achievable and highly desirable.

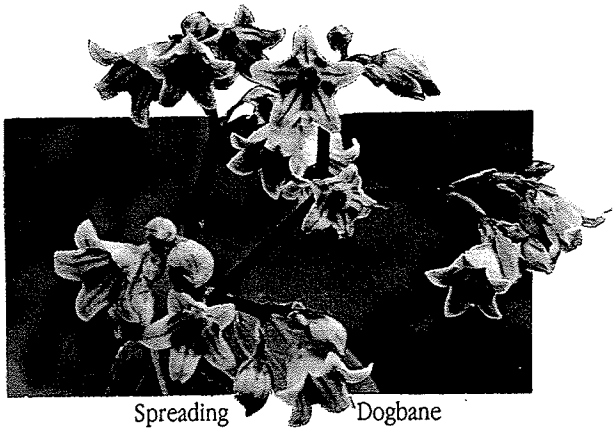
The concept is to carefully place a building into a natural site in accordance with the ideology of 'Living With Nature'.

July 7 last quarter *8* *9*

s u n r i s e 5 : 2 9 s u n s e t 9 : 3 8

Design Concept





Spreading Dogbane

July 14 15 new moon 16

s u n r i s e 5 : 3 7 s u n s e t 9 : 3 2

SPATIAL ORGANIZATION

'Living With Nature' is manifested by separating the activities of daily life into a series of living pavilions, where the occupant sleeps in one pavilion, cooks, eats and entertains in another, and washes clothes or watches television in yet another.

"The most intimate rhythms of the human body are still conditioned by the natural world outside ourselves: the daily path of the sun, alternating light and dark; the monthly phases of the moon....and the annual passage of the seasons." [8] The spatial organization of living spaces will respond directly to these rhythms. Some examples are as follows:

- waking from sleep in the east
- eating breakfast in the east
- afternoon activities (reading, laundry) in the west
- bathing in the comfort of warm south sun
- eating dinner with a west skyward orientation

The theory is that housing these activities in several smaller pavilions, as opposed to one large building, will ensure that the occupant will be constantly *surrounded* by wilderness.

SITING OF THE PAVILIONS

In addition to the advantages of their spatial organization, smaller pavilions can easily be integrated into the natural characteristics of the landscape, thereby creating "the illusion of undisturbed nature; by distributing their weight, they sit lightly on the landscape." [9] Pavilions are sited with a respect for natural rhythms as well as a respect for the physical and metaphysical attributes of the landscape. Through design and orientation

Giant Sunflower

July 21 *22*

s u n r i s e 5 : 4 7

first quarter *23*

s u n s e t 9 : 2 3

mindful of topography, hydrology, flora, fauna, wind, light and views, the occupant will come as close as possible to living in harmony with the natural surroundings.

LIVING PAVILIONS

The living pavilions interact with their site in two ways. First, the east and west walls are structural masses with strategically placed small windows to emphasize specific views of the landscape while providing privacy from the neighbours. These openings also focus on the rich quality of early morning and late evening light. Where a special emphasis on a particular living activity is desired, these walls extend beyond the confines of their rectangular geometry in the form of cantilevered nooks. The second way in which the living pavilions interact with their site is through the use of large glassed terrace doors in the north and south. This creates a visual and physical continuity between interior and exterior.

CORRIDOR

The pavilions are connected by a corridor which transects the building site. It is intended to be a hallway or a path through the landscape, where a person walking on it will fully experience the emotive qualities of the natural surroundings. Responding to public, semi-public, transitional, threshold, semi-private and private space, the corridor will be a path, trellis, covered trellis, front entrance, glass enclosed hallway and screened glass enclosed hallway. It is a service corridor which is to carry people, as well as plumbing, heating and electricity through the site. It is also intended to be the corridor through which construction workers gain access to the site so as to minimize disturbance of the land.

Fringed Gentian

July 28 *29* full moon ◯ *30*

s u n r i s e 5 : 5 6 s u n s e t 9 : 1 3

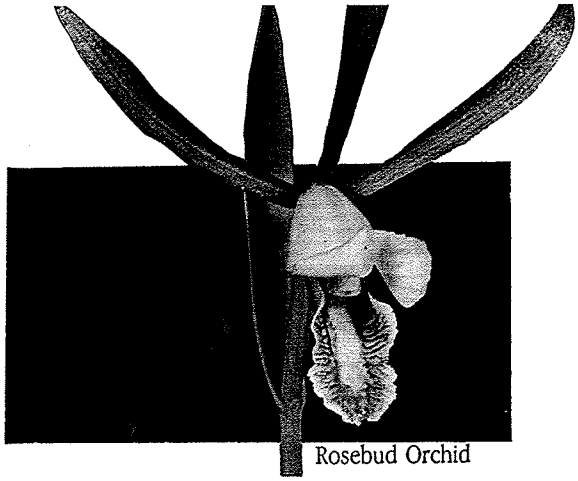
LANDSCAPE

The most recognizable element of conventional suburban landscapes, is the domestic garden. Formal front lawns, ornamental trees, foundation planting shrubs, large beds of annual flowers and informal backyard lawns have become great icons of the pastoral suburban landscape. The idea and execution of these landscapes is so widely accepted and expected, that their inclusion in this project serves to provide the occupants with a measure of familiarity with the suburban neighbourhoods in which they have lived.

The constructed landscapes will exist directly adjacent to each pavilion, as an extension of the indoor living space. Depending upon the desires of the occupant, these landscapes will have a variety of forms. They can be formal or informal; they can have lawns, ornamental trees, shrubs, perennials and annuals; they can be water features or lush gardens; they can be kitchen gardens, or a place with a small pergola for sitting; they can also be turned back to a natural landscape.

SITE

Conceptually, the proposed site is any natural site where living closely to the land is desired. Within the new cultural context of preservation, the land is touched lightly, by lifting the entire development slightly above ground level. This includes lifting the pavilions, corridors, constructed landscapes, and even the public areas of the site to a consistent level, or datum, above the ground. This datum facilitates movement around the entire site while nature remains "...within a short step of the front door." [10]



Rosebud Orchid

August 6 last quarter *7* *8*

s u n r i s e 6 : 0 6 s u n s e t 9 : 0 2

5 DEMONSTRATION HOUSE

SITE

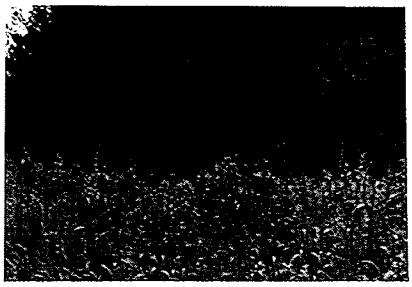
The site is a marginal aspen forest (see appendix 8.2 'The Aspen Parkland'), situated at the south-east corner of the Fort Whyte Centre for Environmental Education in south Winnipeg. The approximately four hundred foot deep, fourteen acre site is bordered on the south by McGillivary Boulevard (P.T.H. #3), on the north by Alpha lake, and on the east by a private residence. The west section of the site takes shape from a private residence but remains a continuation of the Fort Whyte grounds.

The Fort Whyte site was chosen for this practicum as a result of previous studio work associated with it in 1992 (see appendix 8.3 'Summary of Studio Work, Master's One), and because of its subtle beauty. Through park design and the general taming of natural surroundings, urban dwellers have come to hold nature as a human controlled environment. The Fort Whyte site is an example of how nature appears outside the realm of human control; the grass is tall, water sits in puddles, old aspens are blackened and fallen, and parts of the lake's shoreline are weeded. This site serves as an excellent example of untamed nature in an increasingly suburban context.

August 13 *14* new moon *15*

s u n r i s e 6 : 1 8 s u n s e t 8 : 4 8

Housing Site at The Fort Whyte Centre



August 20 *21* first quarter *22*

s u n r i s e 6 : 2 8 s u n s e t 8 : 3 4

Site Inventory

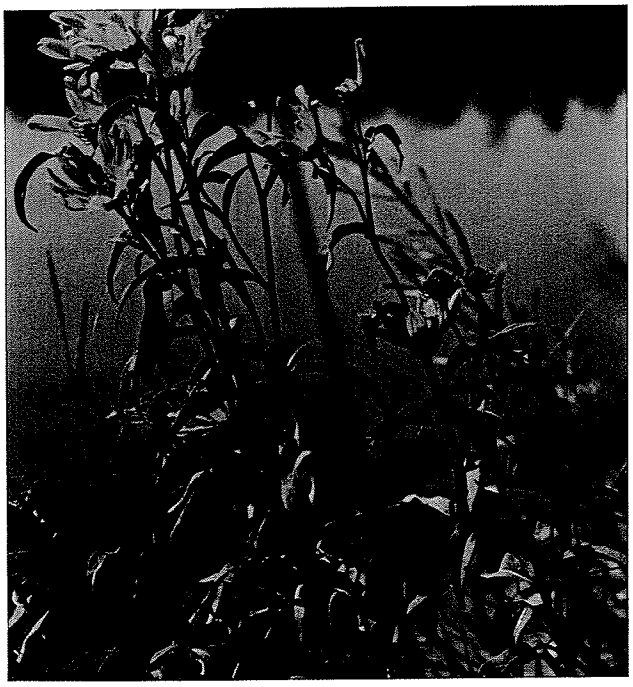
"Architecture is bound to situation. Unlike music, painting, sculpture, film, and literature, a construction (non-mobile) is intertwined with the experience of place. The site of a building is more than a mere ingredient in its conception. It is its physical and metaphysical foundation." [11] In the prairies, a site inventory reveals a very powerful landscape of glorious colours, gentle sounds, subtle fragrances and rich textures. (see appendix 8.4 'A Mountain Sunset')

Following is a list of the site's natural elements. Collected over a period of three years, in all seasons, this list illustrates some of the physical and metaphysical attributes of the site (see appendix 8.2 for a complete plant list of the aspen parkland).

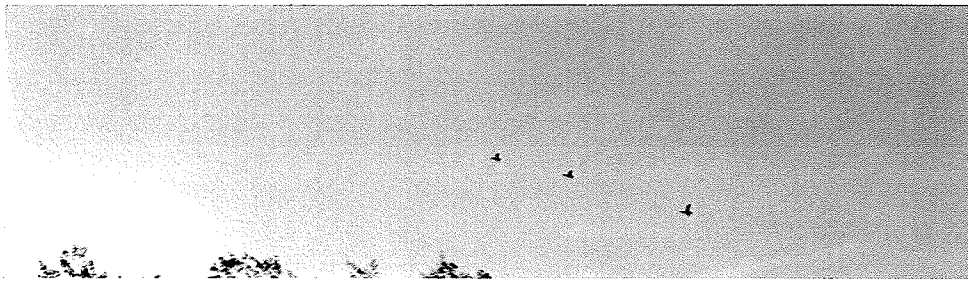
- topography -ultimately flat site
  -subtle contour variations
- hydrology -Alpha Lake
  -two drainage creeks
  -sitting water

August 28 ◯ full moon *29* *30*

s u n r i s e 6 : 3 9 s u n s e t 8 : 2 0



- flora
  - -pristine trees
  - -gnarled and stunted trees
  - -tall shrubs
  - -short shrubs
  - -tall grass
  - -wild flowers
  - -weeds
- fauna
  - -resident deer
  - -migrant birds
  - -wintering birds
  - -rabbits
  - -small rodents
  - -insects
- winds
  - -winter northwesterly
  - -winter southerly
  - -strong spring southwesterly
  - -south summer breezes
- light
  - -vibrant pinks, oranges and purples of early morning and late evening skies
  - -intense south winter sunshine
  - -leaf-speckled south summer sunshine



September 4 last quarter *5* *6*

s u n r i s e 6 : 4 9 s u n s e t 8 : 0 5

• views
-morning sunrise in the east
-evening sunset in the west
-Fort Whyte in the north-west
-UGG grain elevator in the south-east
-proliferation of migrant birds above
-dark, starry night sky
-reflections on the still lake
-thickets of Willow
-blazing redness of Dogwood
-gentle fluttering of Aspen
-wildlife

'Living With Nature' is intended to emphasize these physical and metaphysical characteristics of the landscape. 'Living With Nature' is more than just a view; it is an interaction with all the forces around us.

Site Plan

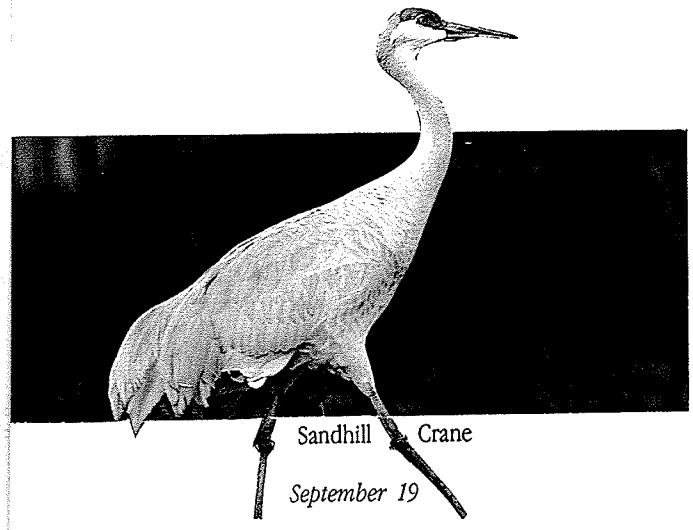
The proposed site plan is similar to what might be found in conventional suburban site development in that I chose regular rectangular lots and a straight access road. I felt the departure from conventional housing design is so great that some measure of suburban familiarity (along with the constructed landscapes) would help the occupants settle easily into this new landscape and lifestyle.

new moon

September 10 *11* *12*

s u n r i s e 7 : 0 1 s u n s e t 7 : 4 8

Site Plan



Sandhill Crane

September 19

20 first quarter

first day of autumn *21*

s u n r i s e 7 : 1 3

s u n s e t 7 : 3 0

The site is developed with rectangular lots aligned perpendicularly to the lake, with a straight access road along the 'front' of the lots. The road runs through the site on a thirty foot wide easement set at the height of McGillivary Boulevard. It is intended to be a rural style road with shallow ditches, gravel topping and it will be lit by farm yard lights hung from telephone/hydro poles. It is expected that once constructed, the ditches and road shoulders will be allowed to grow over with native plant species.

The housing lots will be aligned perpendicularly to the access road. Each lot is 75 feet wide by 150 feet deep which is .258 acres (see appendix 8.5 'Lot, Building and Landscape Sizes'). I chose this lot size because the 150 foot depth allows for two lots within the 400 foot depth of the site. Further, the familiar 75 foot width yields a lot just over a 'quarter acre' in size; I felt it was critical to be able to refer to the lot size in terms of 'acres' because of the semi-rural location and the anticipated rural feel of the development. The site will accommodate thirty-four lots for an overall density of 2.5 dwelling units to the acre. Each lot has building setbacks of 12.5 feet on the east and west, 25 feet on the road side, and 5 feet in the rear. In consideration of these setbacks, each lot has a buildable footprint of 50 feet by 130 feet, or 6,500 square feet. Between two lots side by side, the buildable portions of each have a total of 25 feet of untouched wilderness between them. Where the road is double loaded, the lots are staggered so that views are into these natural buffer zones.

September 26 ◯ full moon *27*

s u n r i s e 7 : 2 2

28

s u n s e t 7 : 1 7

As in any suburban community, a number of areas have been set aside as public spaces. The lot opposite the main access road off McGillivary Boulevard has been designated as space for a community hall (gathering hall, post office, doctor's office, etc.) and a boat dock; another lot has been set aside for the construction of a demonstration house; the berm which runs along the lake has been preserved as a public walkway and the two existing drainage basins are intended as community spaces. Finally, the access road also will function as a public walking space.

'Finished Floor' Site Datum

As discussed under 'Design Concept', it is intended that a 'finished floor' datum be established in the areas of human intervention throughout the site at the level of McGillivary Boulevard; 768.15 feet above sea level. Throughout the site, the height of all roads, driveways, paths, constructed landscapes and the finished floor level of the houses will adhere to this datum. Since the majority of this ultimately flat site is within six inches of 767.00 feet, the datum will occur roughly one foot above the ground. At this height, the datum provides refuge in times of high water. It also allows for easy mobility throughout the site for the physically challenged and for those facing the process of aging in place.

October 2 *3* last quarter *4*

s u n r i s e 7 : 3 4 s u n s e t 7 : 0 0

HOUSE

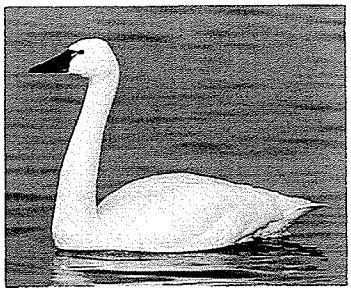
Design Process

The design process began in 1992 with a familiarization of the site through studio work and the study of air photos of the Fort Whyte area. Subsequent site visits throughout the year provided me with an understanding of the emotive qualities of the landscape as well as an inventory and site section of the lot with which I chose to work.

The first task was to create a base map of the lot, on which I plotted existing trees and areas of bush, willow, and grass. Through my understanding of the metaphysics of the site, accompanied by the site section and the map of vegetation, I was able to begin placing pavilions and constructed landscapes where they would best respond to site.

The corridor of the demonstration house found a path past a small group of aspen trees at the road, through a swath of grass, through a thicket of willow, into some thick bushes, past an oak tree, back out of the bushes and out onto the lake. The living pavilions were then placed along the corridor amongst the landscape where they best took advantage of the site. The form of the pavilions began to evolve based on the proportioning of Palladian architecture. (see appendix 8.6 'Design Proportions')

After the proportions of the pavilions were decided and the pavilion and corridor placements were set, the constructed landscapes were extruded parallel to the pavilion from which they were derived. It was then decided that the limit of the constructed landscapes

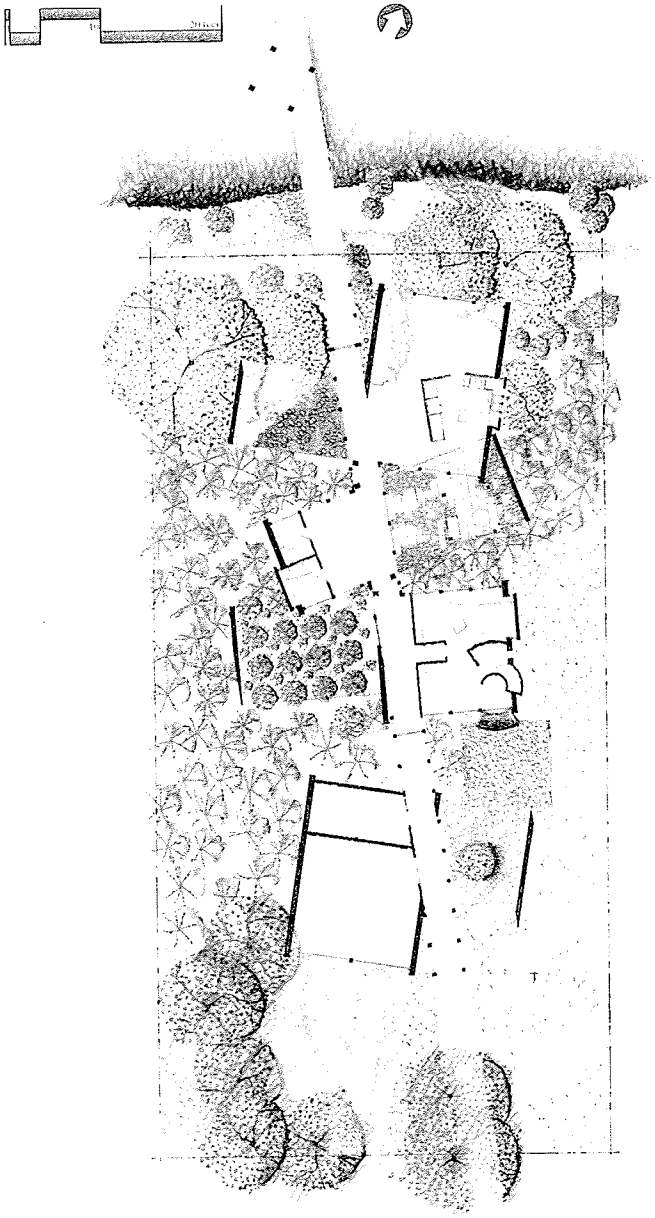


Tundra Swan

October 12 new moon *13* *14*

s u n r i s e 7 : 4 6 s u n s e t 6 : 4 3

House Plan



would be the lot setbacks. These landscapes have a ground plane at the 'finished floor' site datum and are confined by a wall fragment which has been displaced where the corridor touches the building.

Five pavilions, four constructed landscapes, and a corridor comprise the demonstration house. As extensions of interior living spaces, the constructed landscapes are considered integral components of the house. Great care was taken to ensure that the house, as a whole, responded to the emotive qualities of site.

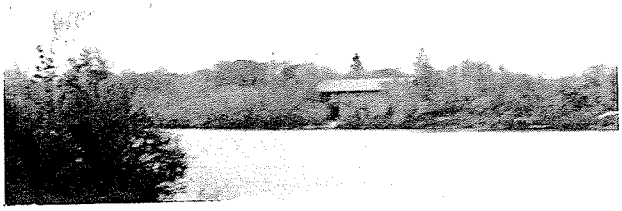
October 18 *19* first quarter *20*

s u n r i s e 7 : 5 8 s u n s e t 6 : 2 9

The Pavilions

The first pavilion to be encountered along the corridor is a double wide garage/carport facing a front road. The 'front' setback corresponds to the length of a car to provide adequate room for four cars on site (two occupant cars in the garage and two visitors' cars in the driveway). This pavilion also has a heated storage area which could be used as a small workshop.

The second pavilion is an entrance/bedroom pavilion. Where the corridor passes through this pavilion, an entrance hall with a coat closet and a view and access into the constructed landscape is found. Behind the entrance hall is the master suite. This large room has two walk-in closets, a large living space and a luxurious bathroom. In correspondence to the spatial derivation of waking from sleep in the east, a portion of the east wall cantilevers past the outside wall and the gap is then glazed to create an area which emphasizes the wilderness just beyond the pillow. The ceiling above the bed is also raised and glazed to emphasize the night sky. The bathroom, which has a warm southern exposure, takes shape from the pattern of drops in water. Originating from the round bathtub, curved walls enclose this room. The curved wall which forms the shower is constructed of glass brick and extends beyond the wall of the pavilion to emphasize the daily activity of bathing. Completing the circle is a trellis in the landscape which provides privacy for the bathroom and defines the shape of a whirlpool tub just outside the bathroom.



October 25 26 ◯ full moon 27

s u n r i s e 8 : 0 9 s u n s e t 6 : 1 6

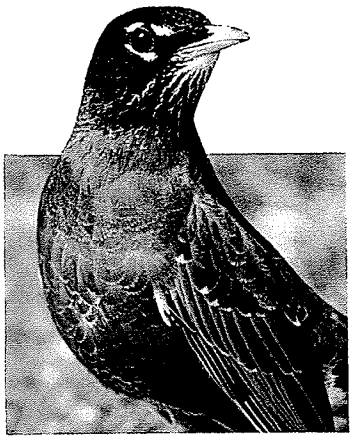
The third pavilion is multi-functional. It is a study, television room, sewing room and guest bedroom combined. A second bathroom and a laundry room are also found here. The laundry room is located with southern exposure and has a cantilevered element and glazed ceiling above where the ironing board/sewing table is located.

The fourth pavilion is the main living area which consists of living room, dining room, and an eat-in kitchen. This pavilion is generally open in plan with a large living room area overlooking the lake, and a dining area situated in the west so a sunset may be viewed while dining. The food preparation area of the kitchen is cantilevered past the east wall and glazed above to emphasize this daily activity. The kitchen extends outside with a counter top barbecue and a large tub sink under a pergola which is found in the kitchen garden landscape.

The last pavilion of this example house is a small screened building which sits on piers in the lake. Clad only in screen mesh and sitting exposed to the elements, this pavilion is the closest of all to the wilderness. It is situated so that one may experience the intense summer sunsets which occur down the lake.

The Corridor

The corridor was conceived as a landscape element and is constructed as if it were a trellis. Where the trellis is the hallway of the house, the walls are made of glass. Views through this glass are screened with plywood sheets cut along the grain lines and roughly separated. The separations are two inches wide to provide vertical framing of



American Robin

November 3 last quarter 4 5

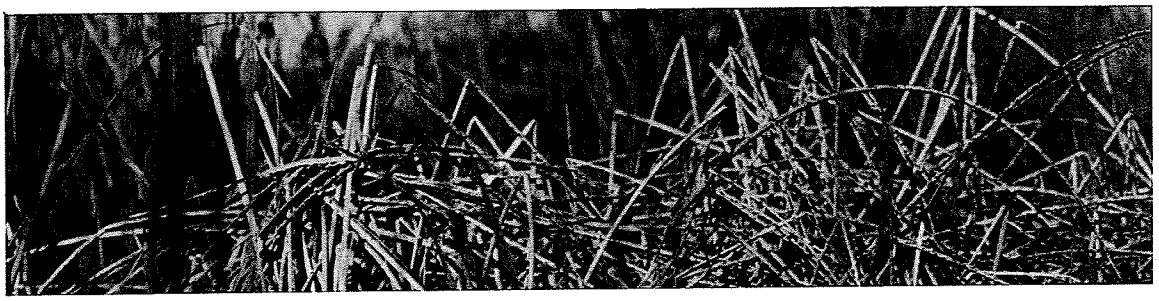
s u n r i s e 7 : 2 2 s u n s e t 5 : 0 2

the exterior environment. These screens also provide privacy and are not necessary where the corridor passes through a pavilion. Where the corridor is exposed to the exterior, the walls consist of patio doors opening to the constructed landscape. The floor is made of tyndall and the foundation walls are also constructed with tyndal veneer to create a look which is *of* the ground.

The corridor begins at the road as a raised tyndal path at the 'finished floor' datum. A trellis begins when the path reaches the end of the 'front' setback. When the trellis reaches the garage pavilion, the corridor becomes a covered walkway. Beyond that point is the 'front' door of the house proper. Within a short step, the corridor enters the bedroom/entrance pavilion where its volume is implied by the continuation of the tyndall floor and the curved ceiling. The structure of the corridor remains only where one of its walls occurs outside the wall of the pavilions it touches. The corridor continues in this fashion across the site and through each pavilion until it reaches the door addressing the lake shore. The corridor then reverts to a trellis and then to a path which is terminated by the screened pavilion on the lake.

The Constructed Landscapes

As discussed earlier, the constructed landscapes have many functions and can be manifested in a number of ways. The demonstration house illustrates four landscape options.



November 8 *9* new moon *10*

s u n r i s e 7 : 3 4 s u n s e t 4 : 5 1

The first of these options appears adjacent to the garage pavilion as an entrance garden. A single ornamental flowering crab tree is found at the centre of this highly formalized landscape of manicured lawn. It serves to welcome visitors and also recalls traditional suburban landscapes.

Next we see a demonstration landscape of aspen bluff beside the entrance hall of the house. Organized on a grid to emphasize this as a man-made landscape, its plantings are made up of entirely aspen parkland species, including: a canopy of aspen (*Populus tremuloides*); a shrub layer of native chokecherry (*Prunus virginiana*), highbush cranberry (*Viburnum trilobum*), red twig dogwood (*Cornus stolonifera*), snowberry (*Symphoricarpos alba*), and saskatoon (*Amelanchier alnifolia*); and a ground cover of bunchberries (*Cornus canadensis*), strawberries (*Fragaria glauca*) and native perennials.

As an extension of the study/laundry room pavilion is a kitchen garden where fruits, vegetables and herbs are grown. It is accessible through patio doors in both the corridor and the kitchen pavilion. A pergola acts as an outdoor kitchen, housing a garden dining set, a food preparation area and a barbecue.

The final landscape option addresses the lakeside entrance and consists of a groundcover carpet of bunchberry and strawberry; a man made space amongst the large lakeside trees.

Each landscape is defined by a 'privacy wall' of similar construction to the pavilion walls from which they are derived and are clad in stucco wire to encourage the growth of climbing creepers and vines.

s u n r i s e 7 : 4 5 s u n s e t 4 : 4 2

Constructed Landscapes

1 5 10 feet

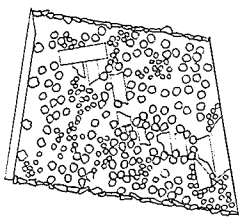
Lakeside Entrance Garden

This garden is characterized by a carpet of native ground cover with tyndall stepping stones and a tyndall slab bench.

4 - Wild Grape, *Vitis riparia* • to be planted adjacent to stucco wire wall

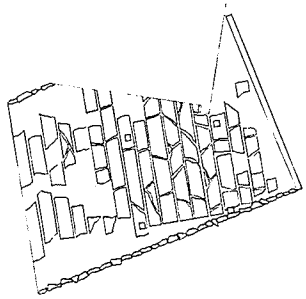
120 - 4" pot Bunchberry, *Cornus canadensis* • to be planted roughly 8" o.c. in large patches of 12 or more

120 - 4" pot Strawberry, *Fragaria glauca* • to be planted roughly 6" o.c. in patches of 10 to 12 adjacent to stepping stones



Standard Components of All Landscapes

- Each landscape is bound by an 8' privacy wall at the east or west edge of the landscape. Each wall is a fragment of the house. They are finished in 'two inch' stucco wire to accommodate vines and creepers.
- Each landscape is at the 'finished floor datum' of the interior living space and is contained by random pattern, 'dry stack' tyndall walls.
- Tyndall walls are set on a 4" base of compacted 'quarter down' crushed stone.
- All planting beds are prepared by excavating to a depth of 16" - 18" below 'finished floor datum'. Planting beds are filled with 'four way' soil mixture.



Kitchen Garden

This garden is intended to be an extension of the adjacent kitchen. Primarily a hard landscape with tyndall paving and a wooden pergola, all of the exposed soil is planted with food 'crops'.

- Tyndall patio stones are oriented to angle of house corridor. Stones are dropped prior to setting to reveal cracks.
- Beds prepared as directed above and planted with vegetables and perennial herbs.
- 8' x 8' pergola to act as an outdoor kitchen.

Aspen Bluff

This garden, directly adjacent to the road-side entrance hall, is intended to be a demonstration of an Aspen bluff ecosystem

13 - 8' Trembling Aspen, *Populus tremuloides* • to be planted 5'-4" o.c. respecting the grid and orientation of the house corridor

* Once the Aspen trees have been placed, the following species are arranged with the largest (at the top of the list) at the centre with the smaller species located toward the edges of the landscape.

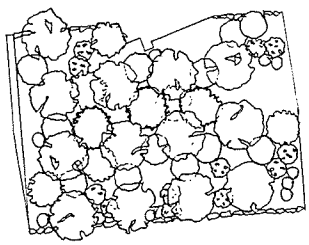
3 - Native Chokecherry, *Prunus virginiana* •

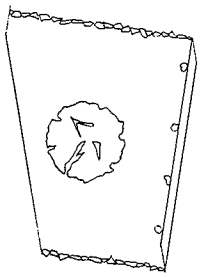
6 - Highbush Cranberry, *Viburnum trilobum* •

12 - Red Twig Dogwood, *Cornus Stolonifera* •

12 - Saskatoon, *Amelanchier alnifolia* •

12 - Snowberry, *Symphoricarpos occidentalis* •





Roadside Entrance Garden

This garden makes reference to the tradition domestic landscape.

- Manicured lawn surface
- 1 - 6' Rosybloom Crab, *Malus sp.* to be planted at the centre of this landscape
- 4 - Scarlet Trumpet Honeysuckle, *Lonicera sp.*

November 24 ◯ full moon *25* *26*

s u n r i s e 7 : 5 6 s u n s e t 4 : 3 5

CONSTRUCTION DETAILS

The role of integrating nature in 'Living With Nature' goes beyond the spatial relationships of occupant and building to site. It is an attention to detail and a respect for the materials and the manner in which they are assembled. (see also section 8.7 'Construction Method') A description of these details are as follows.

The Pavilions

The pavilions are constructed with clear span beams in the east and west walls and with clear span joists to allow freedom for the corridor to pass through these walls at any point. The beams are supported by posts in the four corners of the pavilions, which may be placed inside the corridor with consideration for circulation and aesthetics. The posts also hold downspouts which carry rainwater to a cistern in the crawl space below each pavilion, which provides water for washing and toilets (drinking water is pumped from an on-site well).

The construction of the east and west walls follows standard stud wall framing techniques. They are strategically punctured with square awning windows to focus on certain attributes of the site, or to enhance the interior aesthetic. These windows, which provide cross ventilation, are fourteen inch squares designed to fit standard wall construction without extra framing. The walls are of double stud thickness, and the window units are set four inches into the interior wall. The window recesses are finished such that they appear as holes rather than typical framed windows. The exterior of the east and west walls are clad in orange cottage siding with each pavilion being stained one of a variety of colours, which

December 2 last quarter *3* *4*

s u n r i s e 8 : 0 8 s u n s e t 4 : 2 9

emulates the natural colours of the site. Because each pavilion will carry this orange undertone, a unity of house and site will be implied.

The north and south walls are constructed entirely of glass terrace doors or sealed glass units depending upon their direct relationship with the exterior. To emphasize these glass walls as uninterrupted transparent surfaces, all vertical interior elements are kept at a distance of one foot from the glass. In cases where interior partitions are necessary, the wall is constructed one foot back from the glass wall and a piece of opaque or stained glass separates the spaces. The exterior of north and south walls are finished with a copper band above and below the windows. The upper band doubles as an eavestrough which collects rainwater from the roof, channeling it into a cistern in the crawl space.

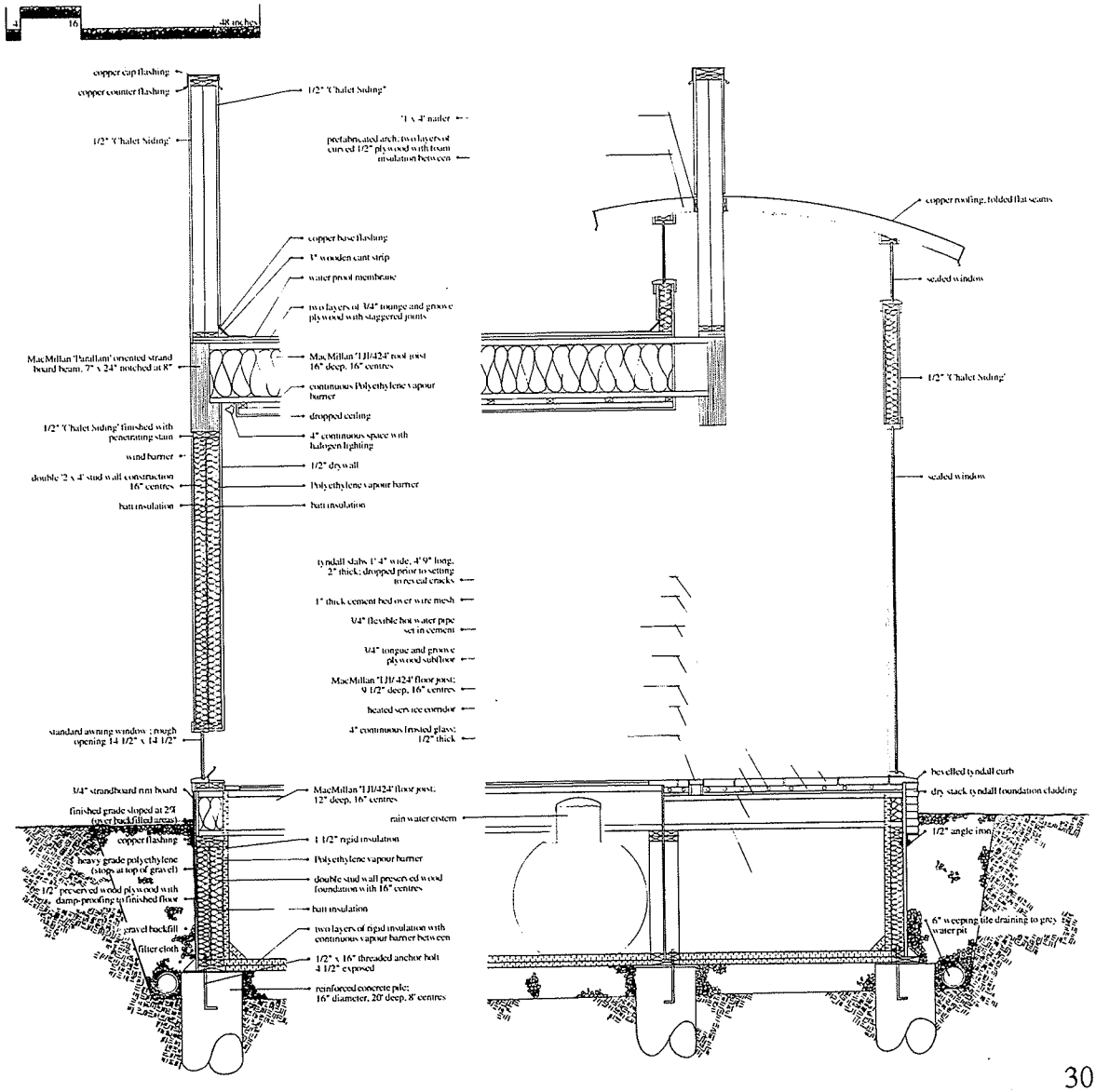
The unglazed interior walls are finished with drywall and painted with colours matching exterior finishes. The floors are hardwood or natural fiber carpets. Where the corridor passes through a pavilion, the volume of the pavilion is joined with that of the corridor to create a flowing space. This is accomplished by removing various elements of the east or west wall, exposing the structural beam of the pavilion. Ceiling joists are also exposed to provide visual access through to the roof structure of the corridor.

It is intended that the east and west walls appear to stand on their own in the landscape. The floors and ceilings are therefore visually separated from the walls by small gaps. The gap in the dropped ceiling is filled with a bank of small halogen lights. The gap in the floor is finished in frosted glass with lighting below.

December 8 9 new moon 10

s u n r i s e 8 : 1 6 s u n s e t 4 : 2 7

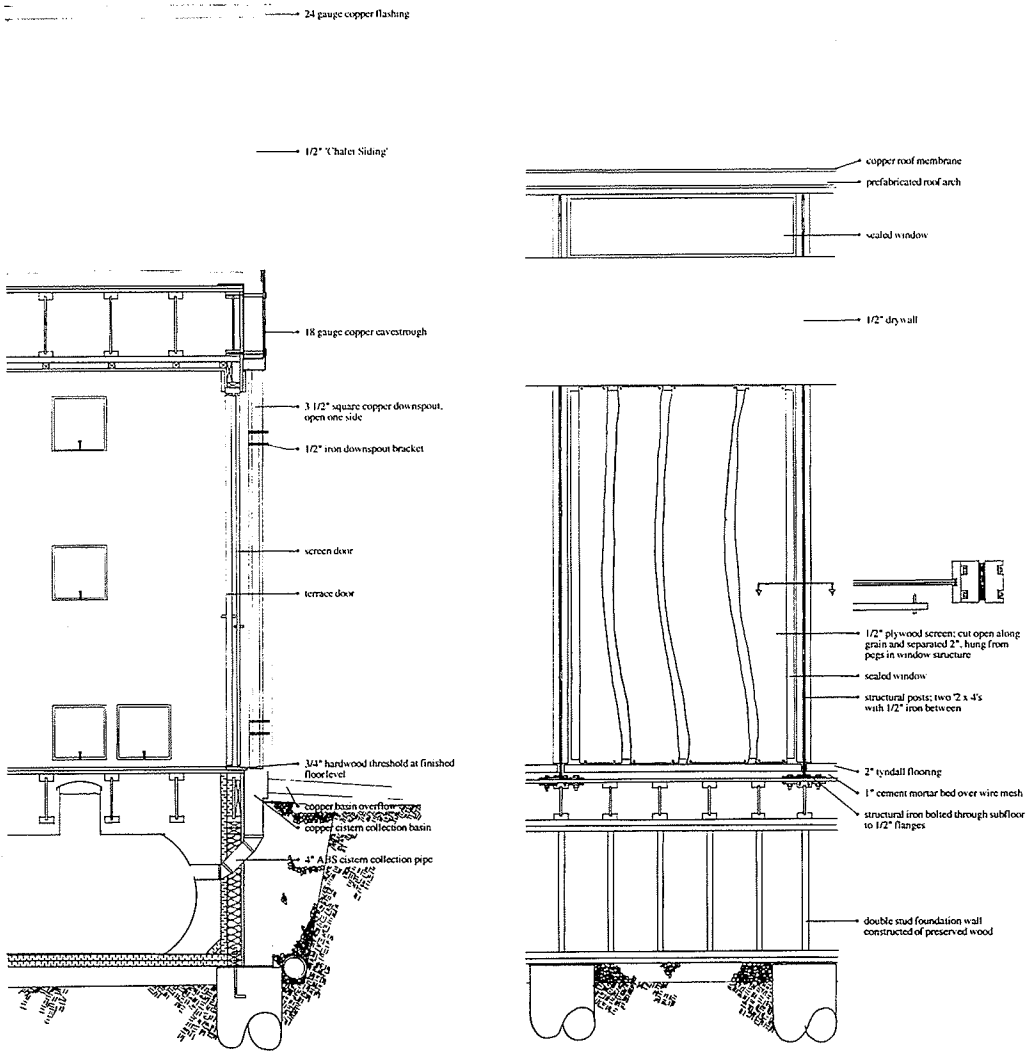
Section Through East-West Wall and Corridor



December 16 *17* first quarter *18*

s u n r i s e 8 : 2 2 s u n s e t 4 : 2 8

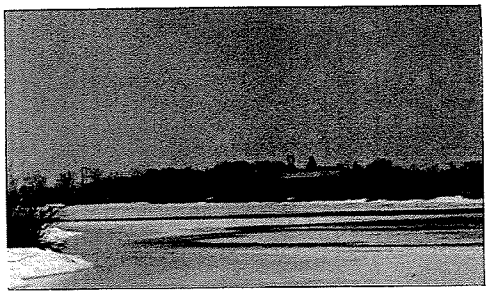
Section Through North-South Wall and Corridor Detail



first day of winter
December 22

23

s u n r i s e 8 : 2 6



full moon ◯

24

s u n s e t 4 : 3 2

The Corridor

The corridor floor is constructed of solid tyndall set in mortar over a wood subfloor. Its patterning is random, based on the natural figuring of the stone. Tyndall is also used as a veneer in finishing the corridor base. The vertical elements of the corridor are constructed of two, two-by-fours separated and strengthened by quarter inch steel plates. Eight foot high windows and patio doors span the spaces between the posts. Above this is found a two foot high band of standard stud construction. The arched roof appears to float above the posts through the use of steel plate brackets to facilitate another small window between the top of the wall and the ceiling. The curve is a prefabricated module consisting of insulation between two sheets of plywood, and roofed with copper.

The corridor is intended to carry beneath it, plumbing, electrical and heating services throughout the site. It is heated by radiant floor heating to mitigate for the coldness of the stone. The exterior paths to the road and the lake are also heated to avoid excessive snow build up in the winter.

The Constructed Landscapes

The constructed landscapes are bound by tyndall stone retaining walls which are set on a compacted gravel base. In conjunction with the cisterns and the on-site waste management, these landscapes are constructed as grey water leaching pits with planted landscapes above.

January 1 last quarter *2* *3*

s u n r i s e 8 : 2 7 s u n s e t 4 : 3 8

6 CONCLUSION

The design of the house was born out of a respect for the land and a desire to dwell amongst nature. Respect for nature and stewardship of the land were the guiding principles throughout all aspects of design. While recognizing the emotive qualities of the site, the design principles of 'Living With Nature' emphasize the most basic of life's daily rhythms and focuses on the natural qualities of all that surrounds us.

"Design guided by a commitment to stewardship of the land is ultimately synthetic and spiritual. It is the resolution of many problems, and much more than that. It is the making of a unified whole from disparate concerns involving the land. In seeking this unity, a designer may be at once self-expressive and a selfless channel for the forces of place. The designer's means are at once tectonic and poetic; rational and intuitive. These solutions are born of needs and desires, of invention and precedent. When attempting to practice land stewardship in architectural design, as always, architecture lives in the participant's emotional response to perception. In this sense, architecture guided by a sense of stewardship is simply architecture." [12]

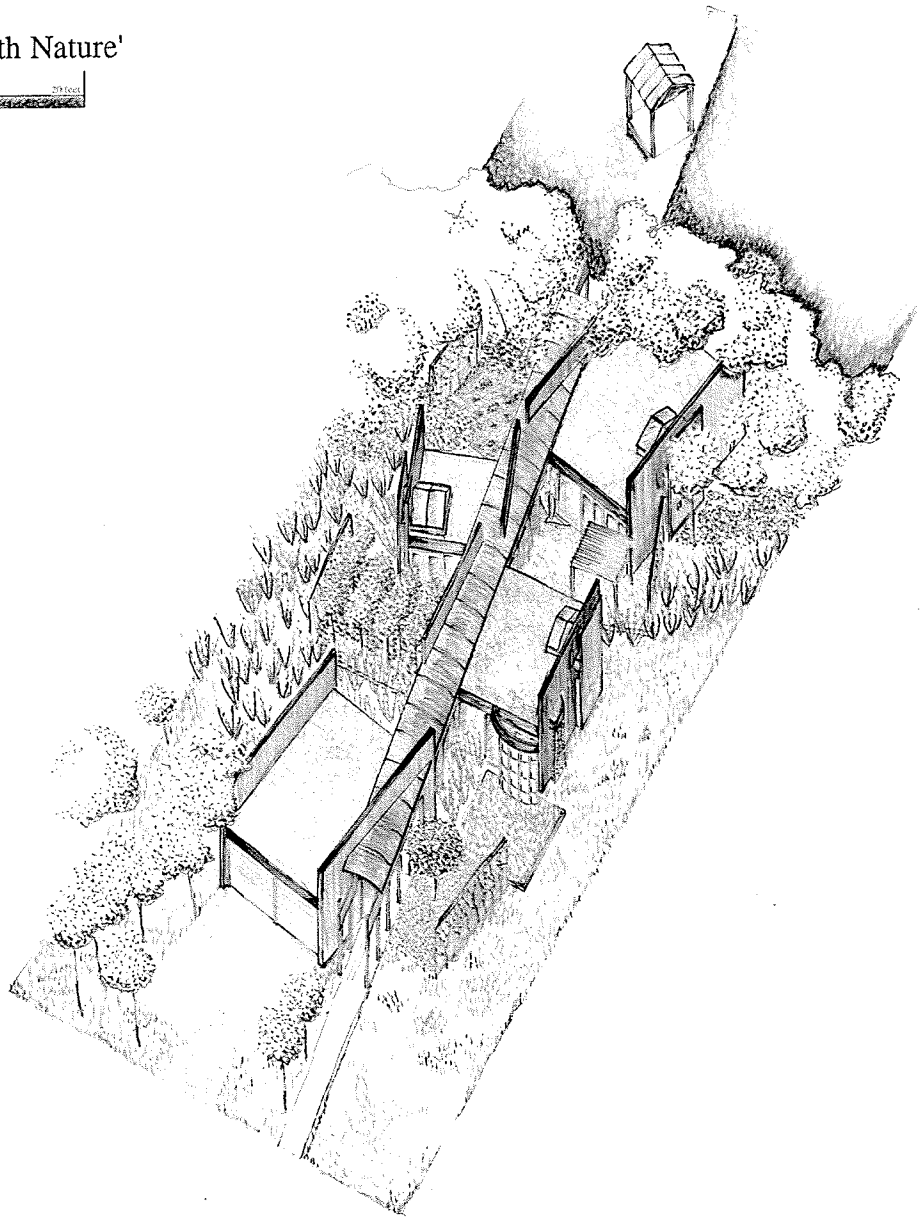
During an age where complexity and information have inundated our daily lives, 'Living With Nature' illustrates a new simplicity through a return to nature. It is a movement towards the refinement of ideas; a pairing of lifestyle to the basic components of living; a directness of life.

new moon 

January 6 *7* *8*

s u n r i s e 8 : 2 5 s u n s e t 4 : 4 7

'Living With Nature'



7 RECOMMENDATIONS FOR FURTHER STUDY

7.1 CONSTRUCTION AND MAINTENANCE

The approach to 'Living With Nature' outlined in this practicum has focused primarily on the design of a house in a natural context. A high degree of stewardship of the land was adhered to in the design, and must be carried through to the construction and maintenance of the project (briefly discussed in appendix 8.7 'Construction Method' and appendix 8.8 'Maintenance'). Construction and Maintenance are both topics worthy of their own practicum/ thesis.

7.2 BUILDING TECHNOLOGY

"From the large perspective of the air, you can see the soft beauty of ground fog as it lies gently, and without distinction, both on pastoral fields and on the arrow-straight lines of technology. For me, it is a soothing symbol of the need to integrate our demands for progress and the preservation of nature." [13]

Progressive energy technologies appear to be the solution to the problem of non-renewable resource depletion. Energy efficient and environmentally sensitive houses have become the jewels of the building technology industry. Solar power, super-sealed houses, triple-glazed high performance windows, super-insulation, cellulose insulation, on site sewage treatment, recycled roofing components, finger-jointed wood trim, oriented strand-board, non-cfc polyurethane sealants, heat-recovery ventilators... The list is constantly changing to meet higher and more stringent public and industrial demands.

While the focus of this practicum was on housing form and its interaction with nature, building technology must be recognized as an integral part of this approach. Application of a technological approach to building is the critical next step in advancing the ideas of 'Living With Nature' into a reality.

7.3 THE NEW SUBURBAN LANDSCAPE

The future holds a new definition of paradise in the suburban environment. With environmental issues remaining at the forefront, the new suburban landscape will be one which embraces a return to the land. In a time when regionally responsible garden centres have begun phasing out ornamental species from their catalogues, and neighbourhoods have begun to embrace naturalization of public spaces, the future of native prairie grass lawns and indigenous hedgerows may well be here.

This practicum explored one way in which indigenous species can be used in a constructed landscape. There will be demand for indigenous plantings in new suburban landscapes, and further study is necessary to formalize this landscape typology.

APPENDIX 8.1
RETIREMENT HOUSING AT THE FORT WHYTE CENTRE

The Fort Whyte Centre for Environmental Education of Winnipeg is currently examining the construction of retirement condominiums on a fourteen acre parcel of the Centre's land accessible by P.T.H. 3 (McGillivary Boulevard). The intents of this project are threefold: to have a pool of retired volunteers living on-site; to develop a housing project which illustrates an environmentally conscious lifestyle; and to generate a source of income for the centre by leasing the land on which the proposed housing sits.

On November fifth, 1993, I met with Mr. Bill Elliot, C.E.O. of the Fort Whyte Nature Centre. It was an informal meeting in which we talked about building sustainable/ environmentally conscious housing at Fort Whyte.

Following is a list of housing features which Mr. Elliot felt to be important in this project:
-casual living
-luxury
-security
-separate units (joined by garage for tax purposes)
-2200 square feet
-one story units
-high beam ceilings
-large living room and dining room
-large bedroom
-second bedroom or study

In our discussion it became evident that the anticipated occupants of the housing at Fort Whyte would be affluent, active empty-nesters and retirees. As outlined in *Builder; The Magazine of the National Association of Home Builders,* 'Affluent Empty-Nesters' are described as couples in their 50s and 60s tending to favor low-maintenance detached or townhome designs. They prefer interiors with first-floor master bedrooms, well separated from entertaining areas and two-car garages with easy access to the kitchen. Open floor plans that let a casual party float from the kitchen into the dining room or family room are a plus. 'Empty nesters' have owned many houses, know quality, and are picky. 'Active Retirees' are described as aged 65 and up. By definition they want to live in an age-restricted subdivision built around a recreational amenity like a golf course or lake. They

will accept smaller, low-maintenance units (duplexes, townhomes, detached housing) with few amenities if there is an upscale central clubhouse. [14]

The proposed housing is intended to encompass the independent lifestyle of these retirees. In order to attain this goal, "the design of elderly housing should allow persons to live as independently as possible in spite of the reduced sensory and mobility levels that accompany the aging process." [15] This is achieved by: providing barrier-free design to accommodate persons using wheelchairs and walking aids, installing safety features such as handrails and non-slip surfaces in an unobtrusive fashion, and providing repetitive visual cues through the use of graphics, colour or planting to aid in orientation. [16]

APPENDIX 8.2
THE ASPEN PARKLAND

The Fort Whyte site is a marginal, or 'border' aspen forest of the Aspen Parkland. Cynthia Cohlmeyer described the Aspen Parkland in her thesis *The Aspen Parkland and its Application to Landscape Design*, as "a vegetation zone containing the familiar aspen bluffs and grassland communities between them and a range of plant communities adapted to particular microclimactic variations within the parkland." [17] Further, she defined a border community as "a specific group of plants found along the margins of aspen forest." [18]

In her thesis, Ms. Cohlmeyer gave special attention to border communities for the following reasons:

- Edge conditions of partial sun, exposure, etc. to which border species are adapted are frequently found in built environments (against buildings, etc.).
- The natural form of border communities creates a graceful transition from vertical elements (trees or buildings) to open space.
- Border communities contain a variety of attractive, hardy plants.
- Border communities provide excellent wildlife habitat.

The following marginal community species lists were obtained from Ms. Cohlmeyer's thesis:

Woody species found in border communities:

Alnus rugosa var. *americana*	speckled alder
Amelanchier alnifolia	saskatoon
Cornus stolonifera	red osier dogwood
Corylus americana	American hazelnut
Corylus cornuta	beaked hazelnut
Crataegus spp.	hawthorns
Elaeagnus commutata	silverberry
Populus balsamifera	balsam poplar
Populus tremuloides	trembling aspen
Prunus americana	wild plum
Prunus pensylvanica	pin cherry
Prunus virginiana	choke cherry
Quercus macrocarpa	bur oak
Rosa spp.	roses
Rubus idaeus var. *strigosus*	raspberry

Salix bebbiana	beaked willow
Salix discolor	pussy willow
Salix humilis	gray willow
Salix petiolaris	slender willow
Shepherdia argentea	buffaloberry
Symphoricarpos alba	snowberry
Symphoricarpos occidentalis	wolfberry
Viburnum lentago	nannyberry
Viburnum rafinesquianum	downy arrow-wood

Herbaceous species found in border communities:

Agastache foeniculum	giant blue hyssop
Agropyron trachycaulum	slender wheat grass
Andropogon gerardi	big blue stem
Anemone canadensis	Canadian anemone
Apocynum androsaemifolium	spreading dogbane
Artemisia ludoviciana var.*gnaphalodes*	white sage
Aster laevis	smooth aster
Astragalus canadensis	Canadian milk-vetch
Bromus inermis	smooth brome
Calamagrostis canadensis	blue-joint
Calamagrostis inexpansa var. *brevior*	northern reed grass
Cypripedium calceolus var. *parviflorum*	small yellow lady's-slipper
Elymus canadensis	Canada wild rye
Epilobium angustifolium	fireweed
Eupatorium maculatum var. *bruneri*	Joe-Pye-weed
Glycyrrhiza lepidota	wild licorice
Helianthus maximiliani	narrow-leaved sunflower
Lathyrus ochroleucus	pale vetchling
Lathyrus venosus var. *intonsus*	purple vetchling
Monarda fistulosa	wild bergamot
Psoralea argophylla	silverleaf psoralea
Rudbeckia laciniata	tall coneflower
Sanicula marilandica	snakeroot
Solidago canadensis	Canada goldenrod
Stipa spartea	porcupine-grass
Thalictrum venulosum	veiny meadow-rue
Vicia americana	American vetch
Zizia aptera	heart-leaved Alexanders

APPENDIX 8.3
SUMMARY OF STUDIO WORK, MASTER'S ONE

This practicum began as a studio project in the spring of 1992. Under the topic "Retirement Housing at Fort Whyte Nature Centre", ideas of landscape architecture, architecture, and nature were explored.

The first stage of the project was to derive a site plan for a retirement village including all buildings, roads, topography, vegetation and water bodies. Site evaluation revealed a marginal aspen parkland landscape and my initial reaction was to maintain the forested areas of the site as they were and to rejuvenate the open areas with a forested quality by proposing a planted grid of aspen trees. Viewed as a delicate landscape, I proposed that services and buildings should alter the site as little as possible.

The second stage of the project was to design the retirement houses in keeping with the general characteristics of the site plan proposal of stage one. Viewed more as an exercise in the architectonics of landscape design than a house plan for retirees, I proposed cubic buildings that were fragmented into two or more pieces to accommodate certain attributes of the site. The buildings fractured along the edge of the existing forest with the front portion sitting among the planted grid of aspens, and the back portion floating freely in the natural forest. Conceptually, the front and rear portions came to represent the formal and informal living areas respectively.

In an evaluation of the masters one project, it became obvious that the design decisions were based primarily on the forest as the sole component of an approach which was intended to embody all of nature. Through experience and subsequent site visits I have come to realize the natural and emotive qualities of this site as more than just the trees. This practicum is intended to focus on the Fort Whyte site as a sample wilderness and it draws inspiration from the nuances of nature. Further, it focuses on housing in the context of a natural site.

APPENDIX 8.4
'A MOUNTAIN SUNSET'

A Mountain Sunset

Today I decided to give the British Columbia setting sun a fair shake.
I sat with all the anticipation I could muster....Nothing.
Even as I write, I keep looking up the mountain for something. I find Nothing.

The B.C. Parks flag is waving the answer. It consists of a big blue ocean with a backdrop of big green mountains and a big yellow sun.
That flag is indicative of the way it is; the magnificence of nature is obvious here.
In my mind, I design a flag for Manitoba that the Parks Branch will likely have nothing to do with. It consists of two layers of subdued washes of colour that only a flatlander could appreciate. The backdrop is a sky ablaze with seventeen differing hues and saturation of the same colour.
This flag is indicative of the way it is on the prairies. The beauty of nature is in the subtleties; you must be able to smell the grass, hear the leaves, feel the humidity and see those seventeen hues. To be able to appreciate this beauty is to know the sublime.

A goose makes a far from graceful take-off and my attention is drawn once again to the mountain across the sound....Nothing.

Reflections at Howe Sound
Summer, 1992

APPENDIX 8.5
LOT, BUILDING AND LANDSCAPE SIZES

LOT: - 75' x 150'
- 11250 square feet
- .258 acre
- buildable portion: 50' x 125' (6250 square feet)

HOUSES (approximate sizes, depending upon design input by client):

Configuration size:	Small	Average	Large
living (22' 8" x 22' 8")	514		
living (22' 8" x 32')		725	725
bedroom (22' 8" x 22' 8")	514	514	
bedroom (22' 8" x 32')			725
study (16' x 16')	256	256	
study (22' 8" x 22' 8")			514
residual corridor (approx.)	200	150	100
storage (approx.)	150	150	150
	1634 sq. ft.	1795 sq. ft.	2214 sq. ft.

All houses have a two car garage/ carport as well as a screened pavilion on the lake (additional 64 square feet of three season space).

LANDSCAPE

The amount of designed landscape is completely variable dependent upon building configuration/ relationship to setbacks, and client desire. It could be as high 3000 square feet or non-existent. The average amount will be about 1000 square feet. Within these figures some, or possibly all, could be demonstration plots of regional landscapes, thereby appearing as *natural* landscapes.

APPENDIX 8.6
DESIGN PROPORTIONS

On Pallidio

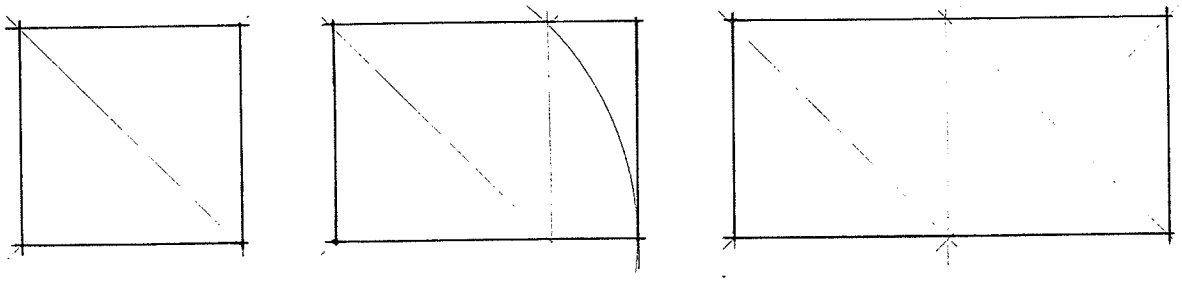
"[Palladio] thought that the square and circle were the most beautiful forms and that from them all others 'received their measure'." [19] This, along with his definition of beauty (see section 3 'Natural Rhythm') greatly influenced the proportioning of the demonstration house.

The Design

In the original massing studies of these buildings, great care was taken to work within the Palladian proportioning guidelines. The design of the buildings has evolved beyond those strict proportions yet have retained their Palladian genealogy. In their evolution, the detailing came to respect standard building materials such as a 4' by 8' sheet of plywood, as well as standard construction techniques such as 16" stud and joist centres.

Derived from 'root two' geometry, the sizes with which I originally designed were (in inches): .75, 1.06, 1.50, 2.12, 3.00, 4.24, 6.00, 8.49, 12.00, 16.97, 24.00, 33.94, 48.00, 67.88, 96.00, 135.76, 192.00, 271.53, 384.00. I chose 'root two' geometry because of the simplicity of its construction (the diagonal of a square) and its correspondence with the double square ('root two' x 'root two' = double square). I felt this proportioning was most appropriate in basing decisions on standard building materials, since a sheet of plywood is of a '2-root two', or 'double square' proportion.

Square, 'Root Two', and Double Square Proportions



The building sizes were originally derived using 67.88" or 5'8", but have been altered to 5'4" to accommodate standard building components based on 16" centres. The overall plan sizes are based on 192.00" (16'), 271.53" (22'8"), and 384" (32'). The base elevation height is 192.00" (16').

APPENDIX 8.7
CONSTRUCTION METHOD

Within this approach to 'Living With Nature', a high degree of stewardship of the land must be addressed in construction. Beginning with the construction tendering packages and throughout construction, all trades will be well advised of the importance of moving lightly on the site.

The first step in construction is to clear a thirty foot easement for road and lot surveying. This is followed by the placement of electricity, communications and waterlines under the easement. All machinery and workers must stay within the thirty foot easement whenever possible. Once the site is accessible, a four to six inch layer of crushed stone over the easement serves to stabilize the surface. The lots are then developed along one line of access; the corridor. Movement to pavilion construction sites within each lot is to be made entirely within the corridor clearing. It is approximately six feet wide, and will therefore accommodate a small backhoe, a bobcat or a pickup truck. There may be circumstance which necessitates movement off this path but it should be kept to a minimum. Under no circumstance shall there be any movement within the side yard buffer zones between the buildable portions of neighbouring lots.

With construction beginning at the furthest point from, and working toward, the road, the order of construction for each house is as follows:
- clear the corridor pathway
- clear rectangle areas of living pavilions and constructed landscapes
- excavate the corridor and farthest pavilion from the road to a depth of four feet below finished floor level
- excavate the constructed landscape to a depth of one two feet below finished floor level
- drill concrete pilings for the landscape privacy wall
- Stock pile gravel in the excavated area of the constructed landscape
- excavate the corridor toward the road until the next pavilion
- drill concrete pilings in the pavilions and corridor
- pour reinforced concrete pilings
- place compacted crush floor in pavilion and corridor excavations
- stock pile foundation framing material in each pavilion
- frame the foundations, floor joists and subfloor
- waterproof the foundation and installation of copper flashing around the base

- hand backfill the foundations; the floor of the corridor will hold a bobcat bringing backfill materials which will in turn be dumped into wheelbarrows and the wheeled over the edge of the floor
- hand level grey water drainage beds
- compact edge of drainage beds for tyndall landscape walls
- construct tyndal landscape walls
- construct landscapes
- construct pavilions and corridor; care was taken in the design of this home to use primarily small dimension and engineered lumber which can easily be carried by hand through the corridor to the construction site

APPENDIX 8.8
MAINTENANCE

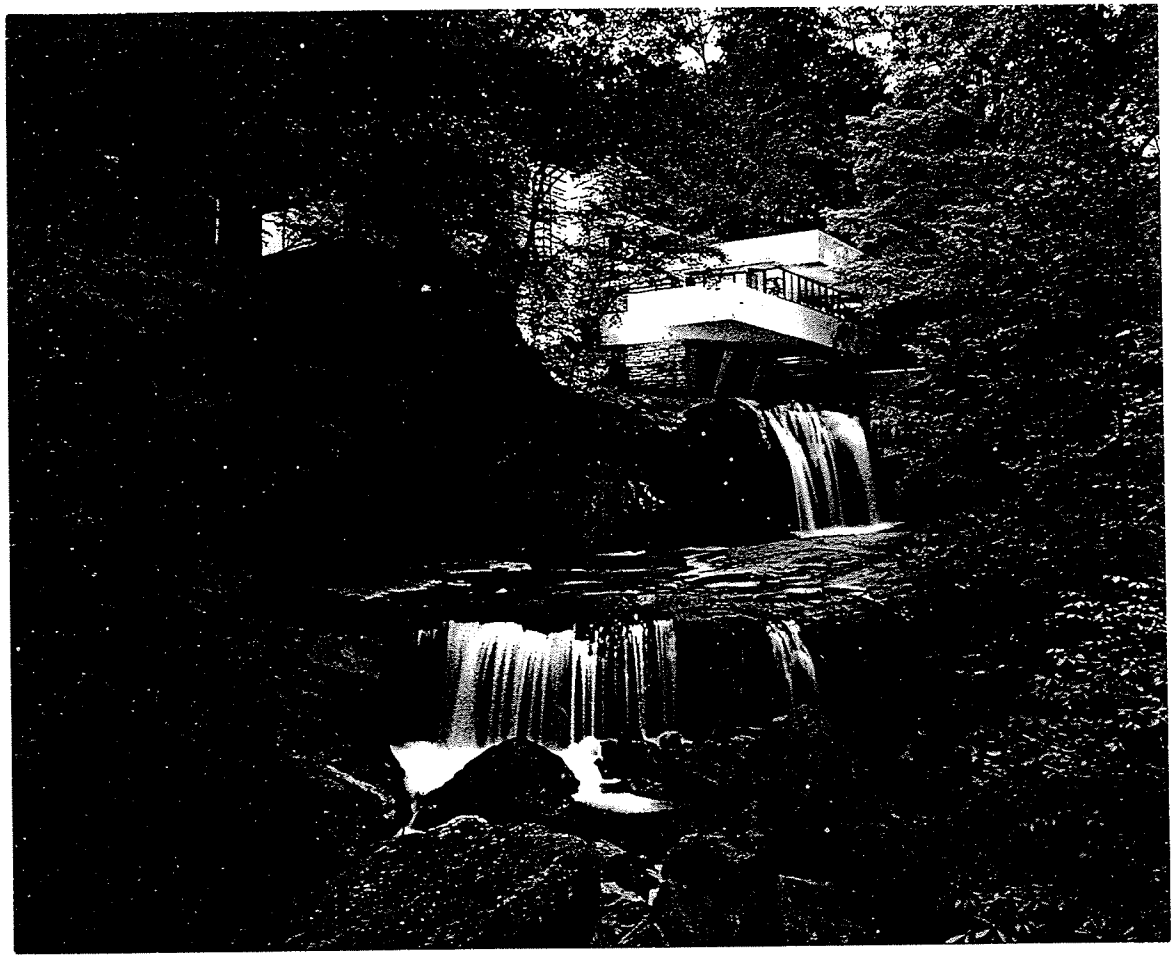
Within this approach to 'Living With Nature', the amount and type of maintenance throughout the life cycle of the buildings and site should reflect a stewardship of the land. The houses are carefully set into a working natural landscape where the occupants can observe the natural processes of the dynamic wilderness in which they live. In keeping with the attitude of 'treading lightly' upon the land, it is intended that the natural processes of the wilderness will be encouraged. This will be facilitated by a condominium maintenance committee which will be the responsible for the balancing of the desire for natural processes versus safety issues.

An example issue is old aspen trees falling on houses or people. In order to reduce damage, the natural processes of the tree falling in the wind, being struck by lightning or being felled by beavers will have to be circumvented. To this end, the condominium maintenance committee will conduct routine inspection of trees in close proximity to buildings and may decide to cut down a tree before it falls. Within the site maintenance guidelines, the committee will find specific instructions for care of the site. In this case, the committee would be instructed to fell the tree away from the house and leave it where it falls; the nutrients released in the decomposition of the tree are important in soil building for this site to continue functioning as a natural environment.

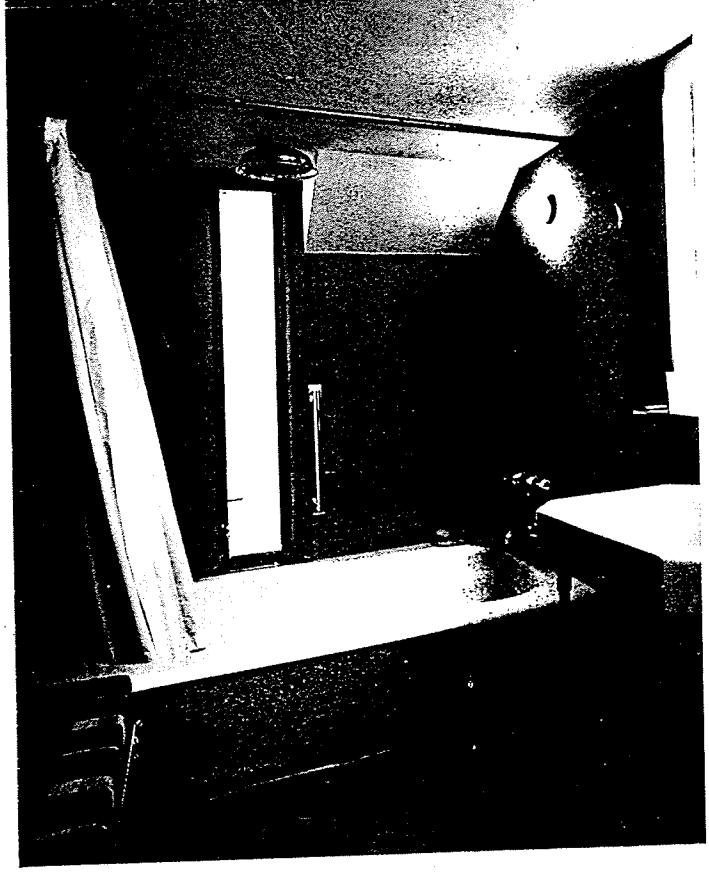
APPENDIX 8.9
HOUSING FORM; EXAMPLES OF ARCHITECTURE AND NATURE

The subject of 'architecture and nature' is extensive. It covers public and private buildings in every period of history, and in every culture. Man's attitude toward nature has been expressed in many ways through art and architecture. 'Living With Nature' explores a very small corner of 'architecture and nature', yet has been influenced by the broader subject. Following is a gallery of some of those influences.

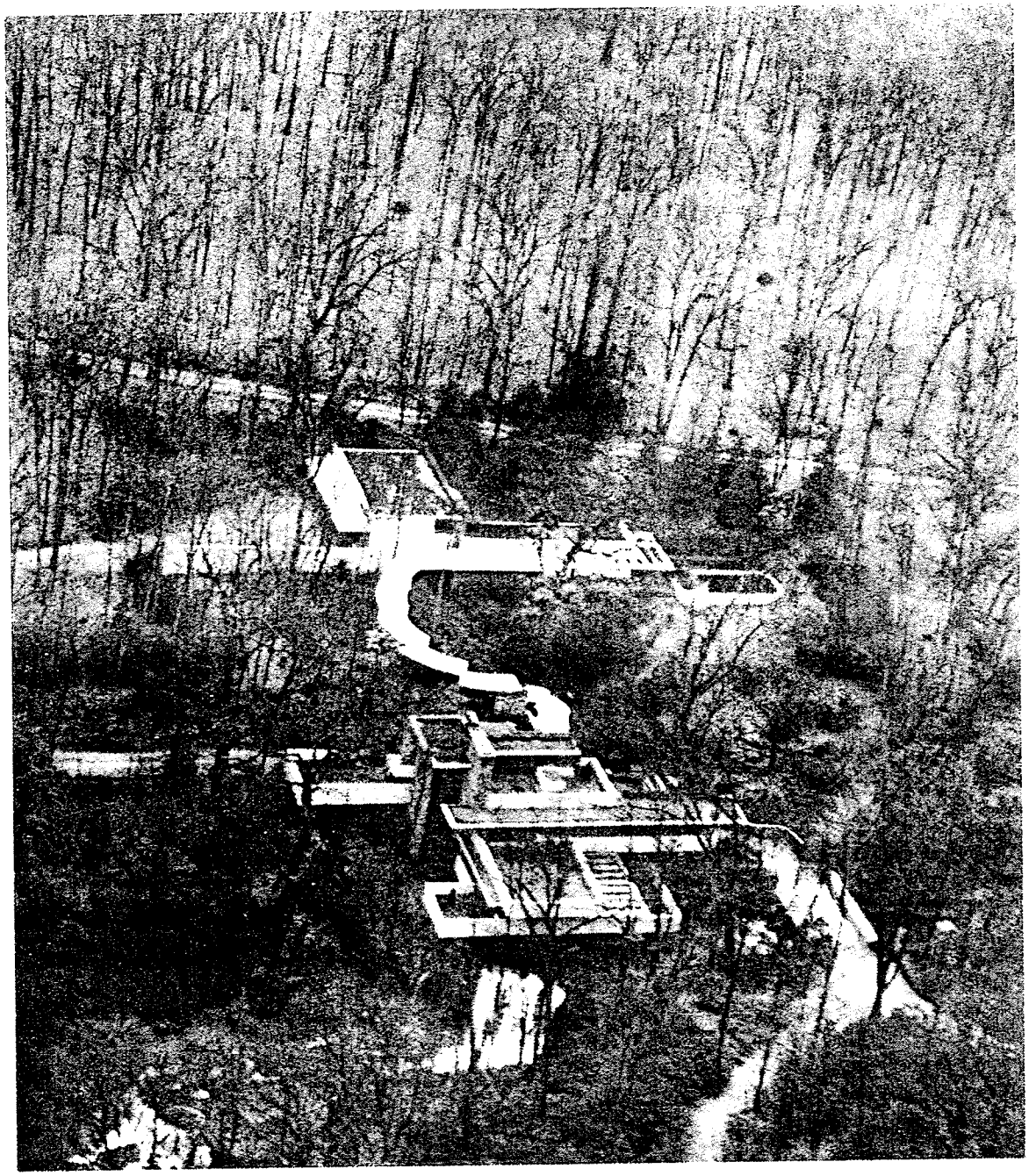
Frank Lloyd Wright



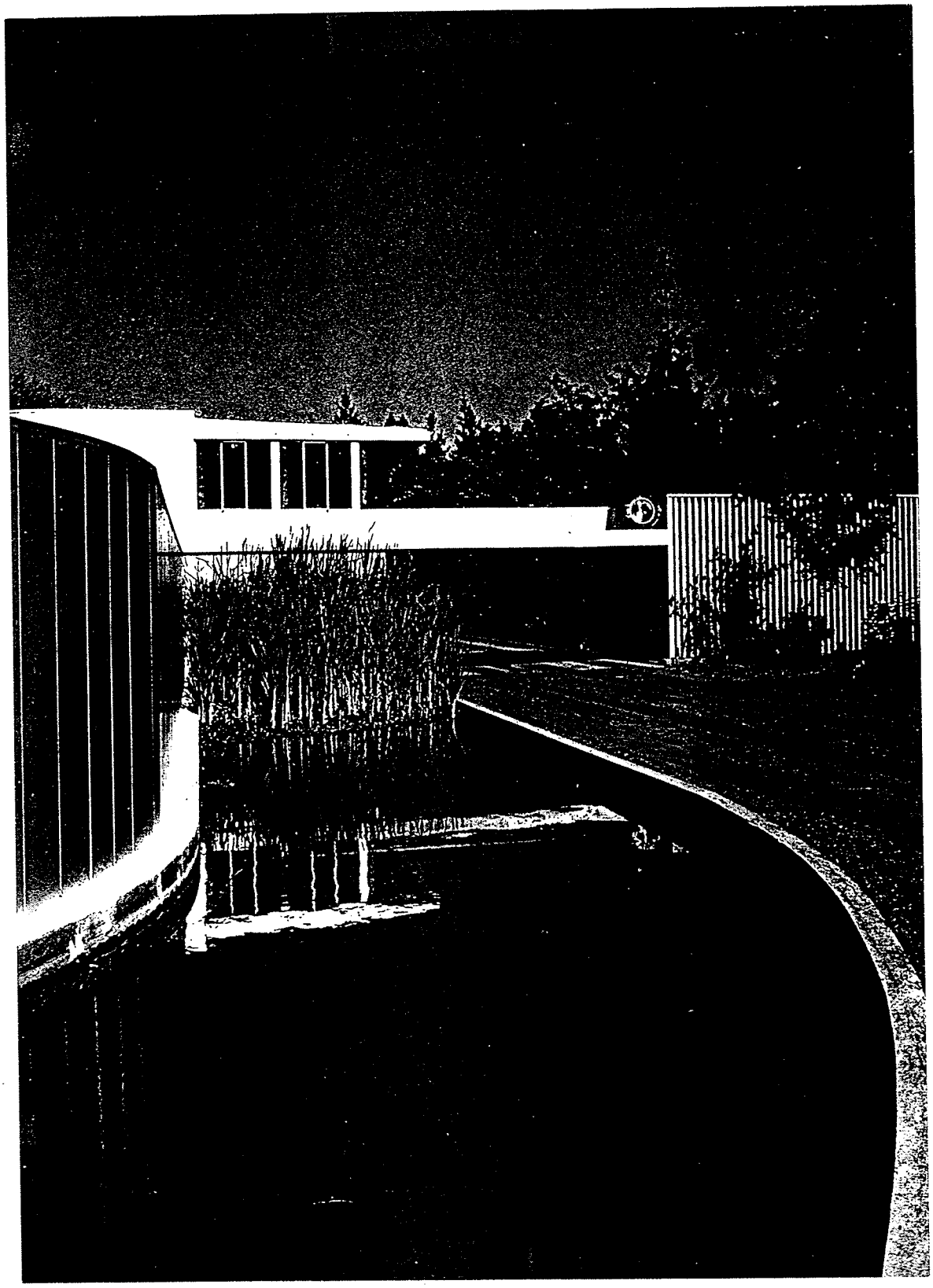
Frank Lloyd Wright



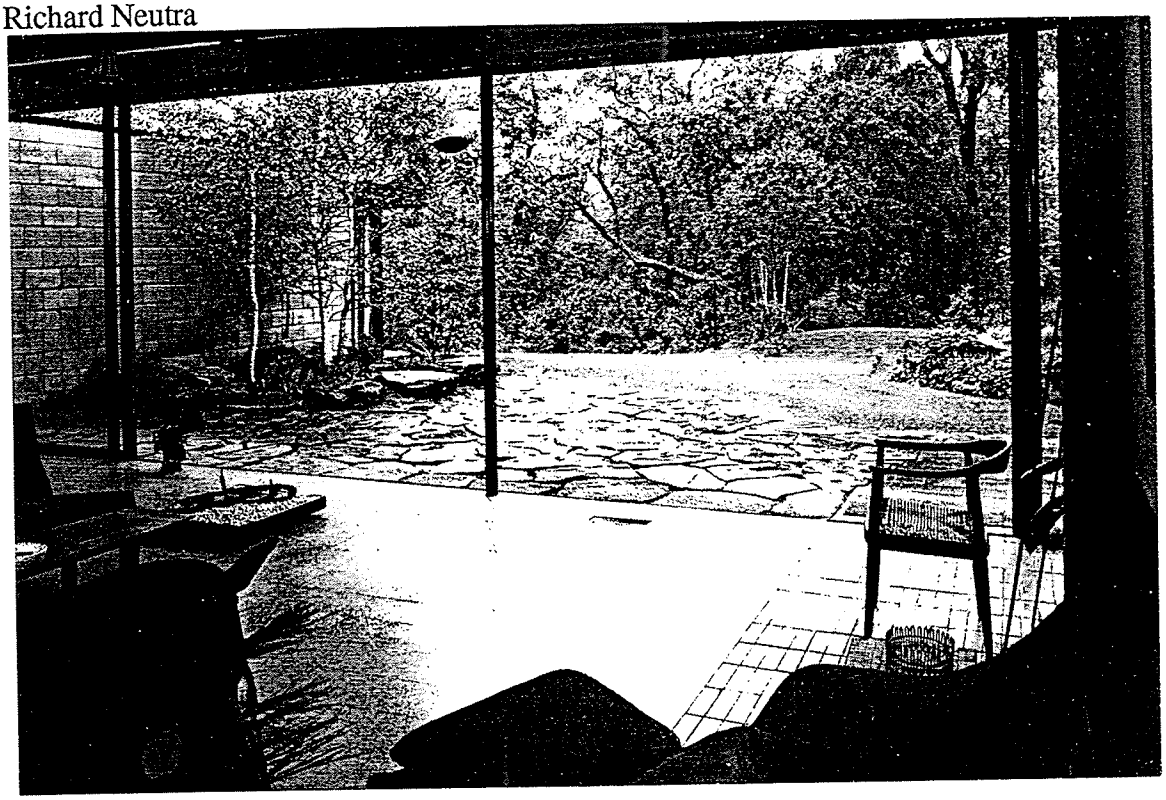
Frank Lloyd Wright

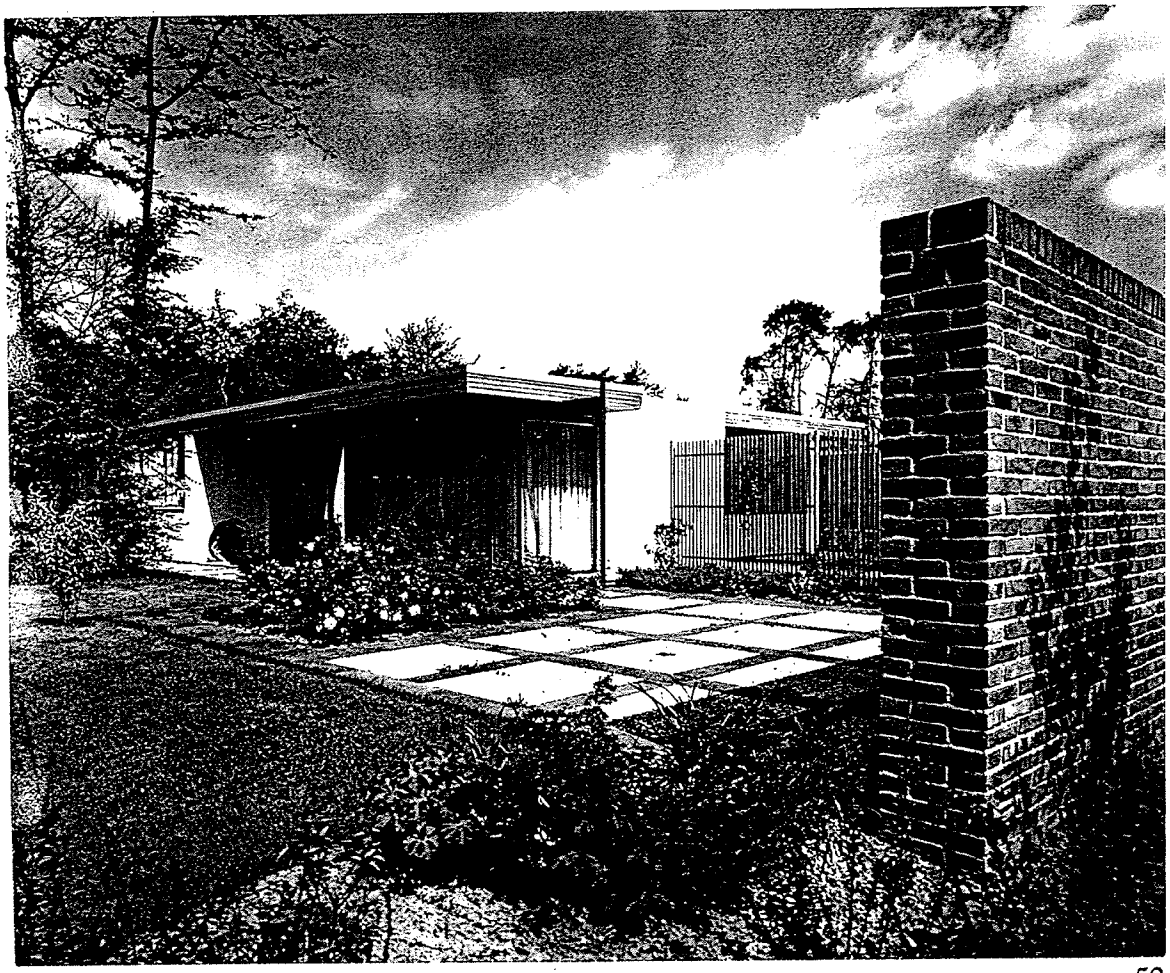


Richard Neutra



Richard Neutra





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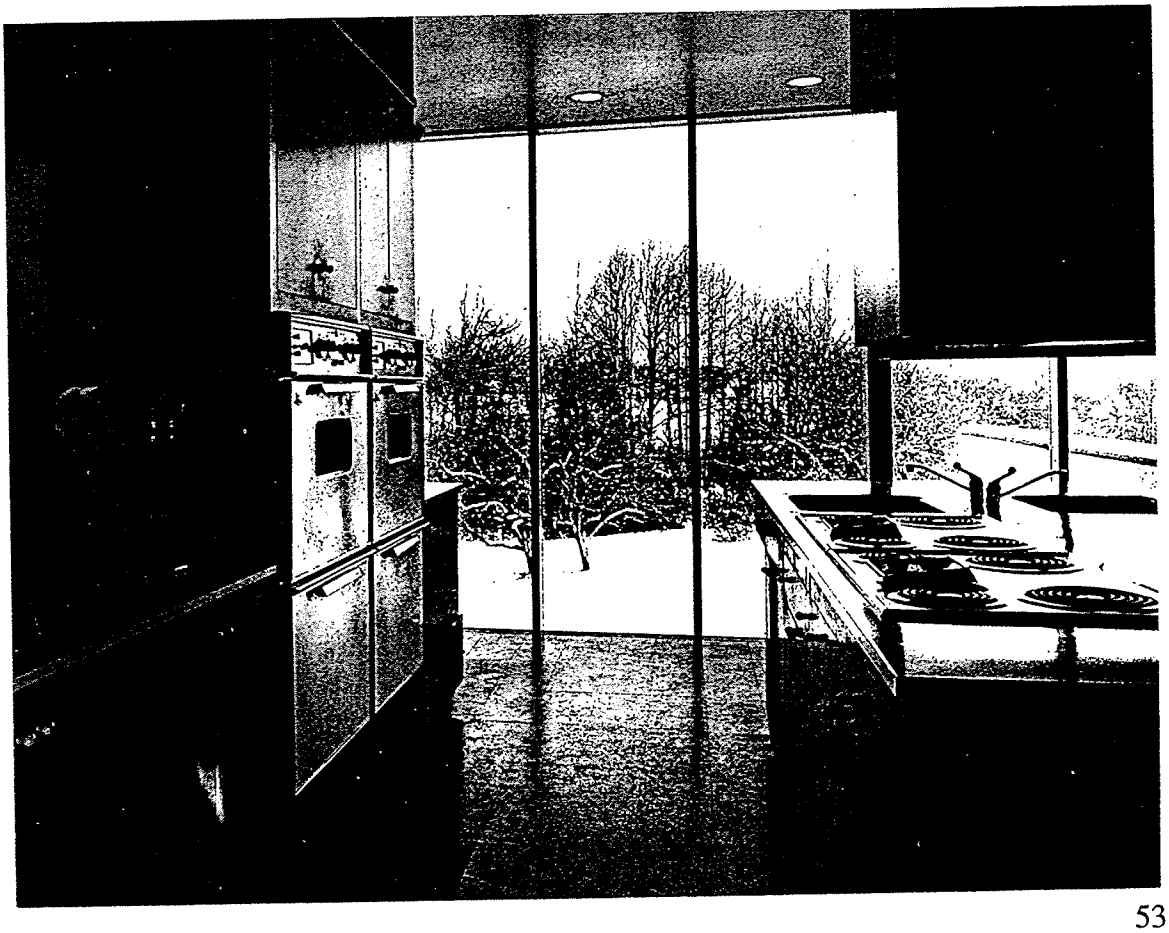
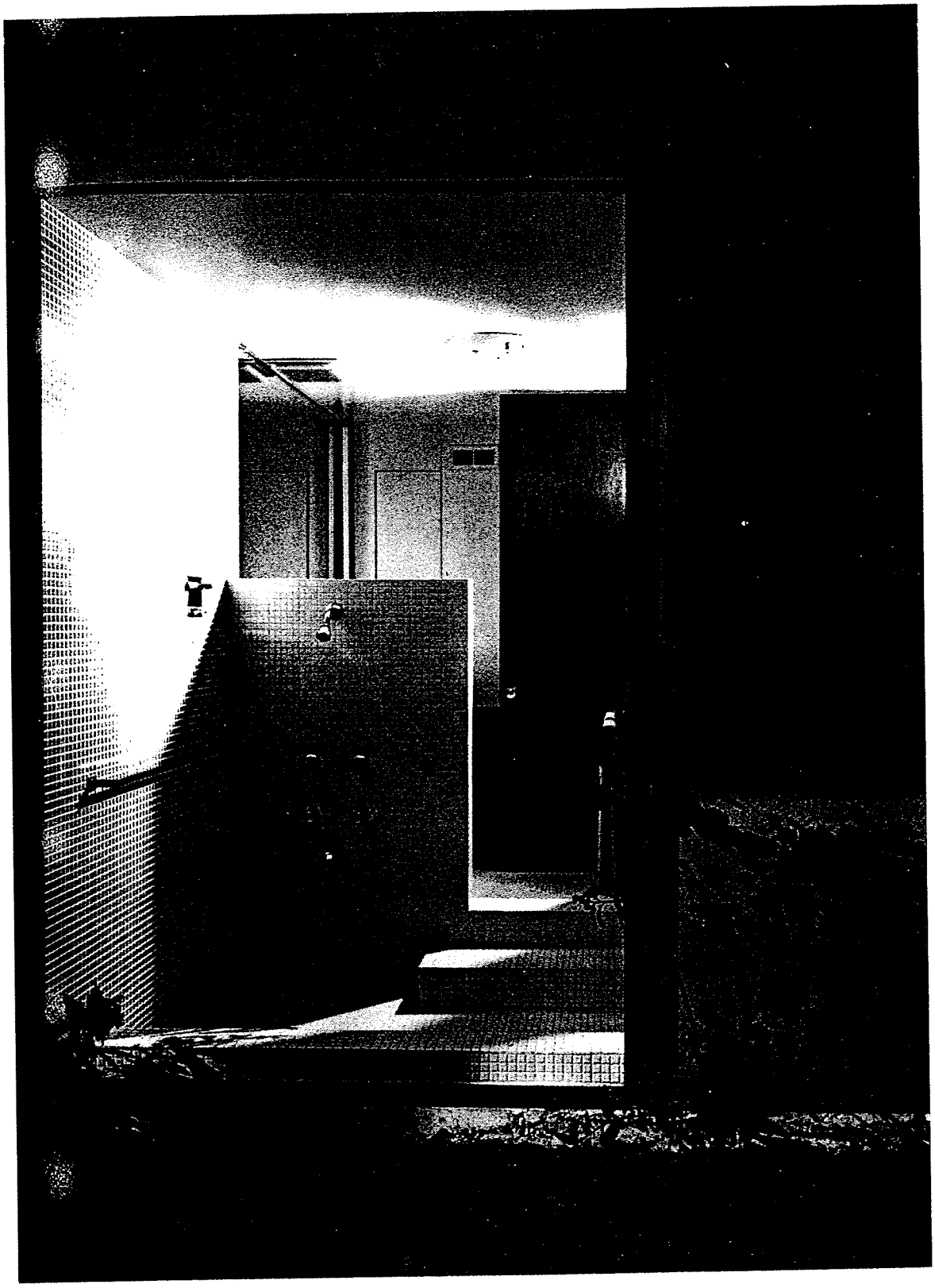
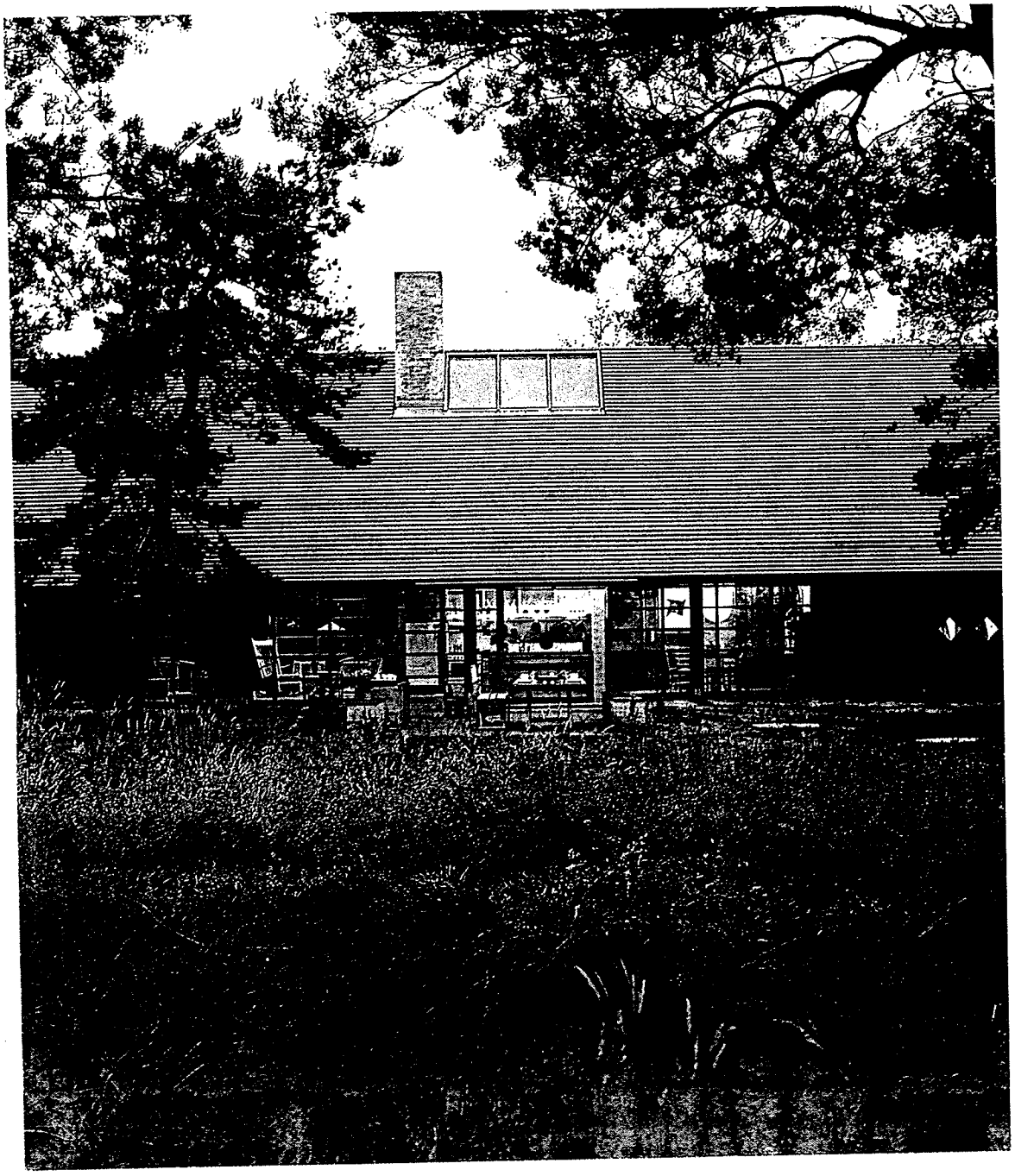


Richard Neutra



Hanne Kjærholm



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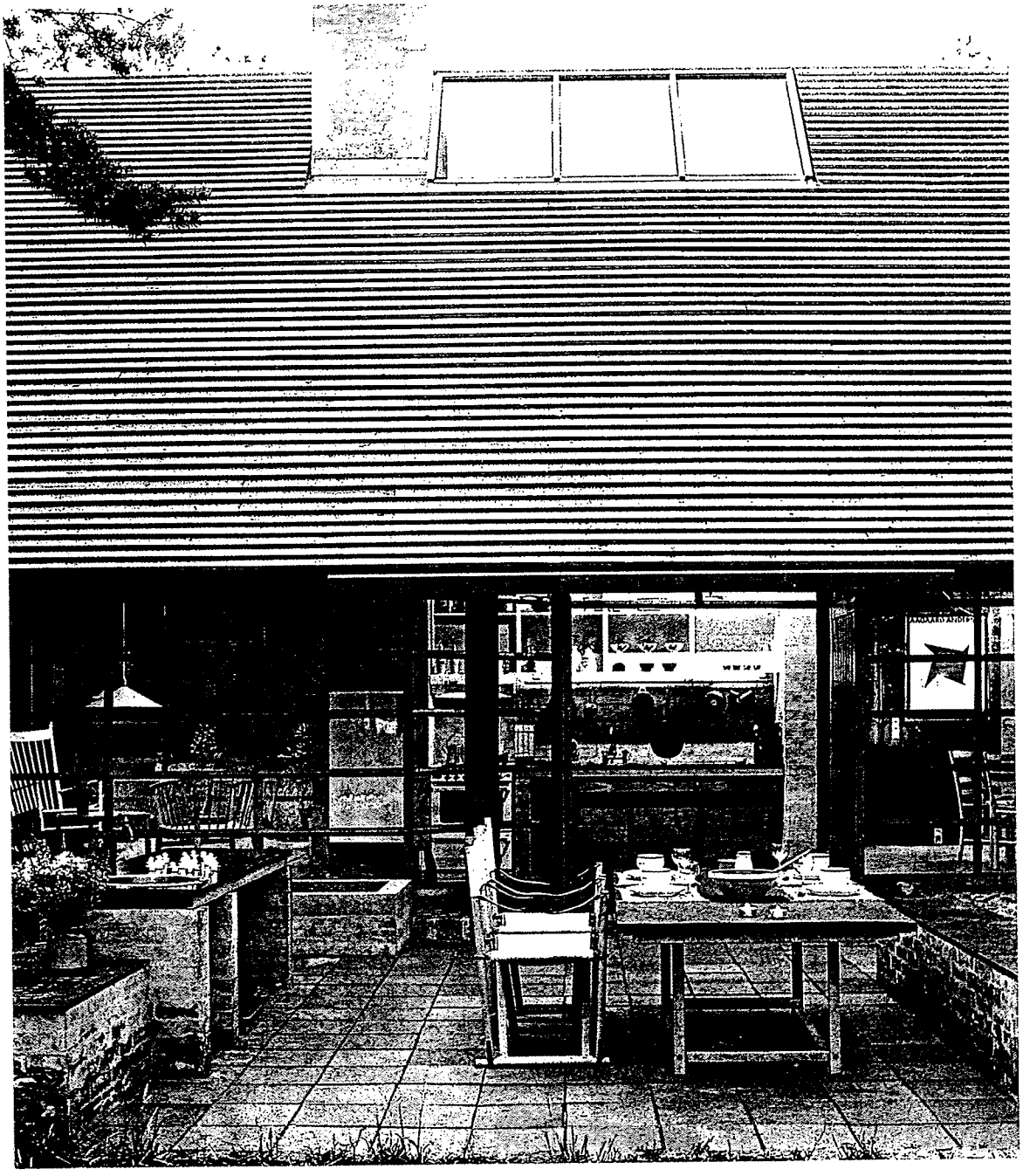

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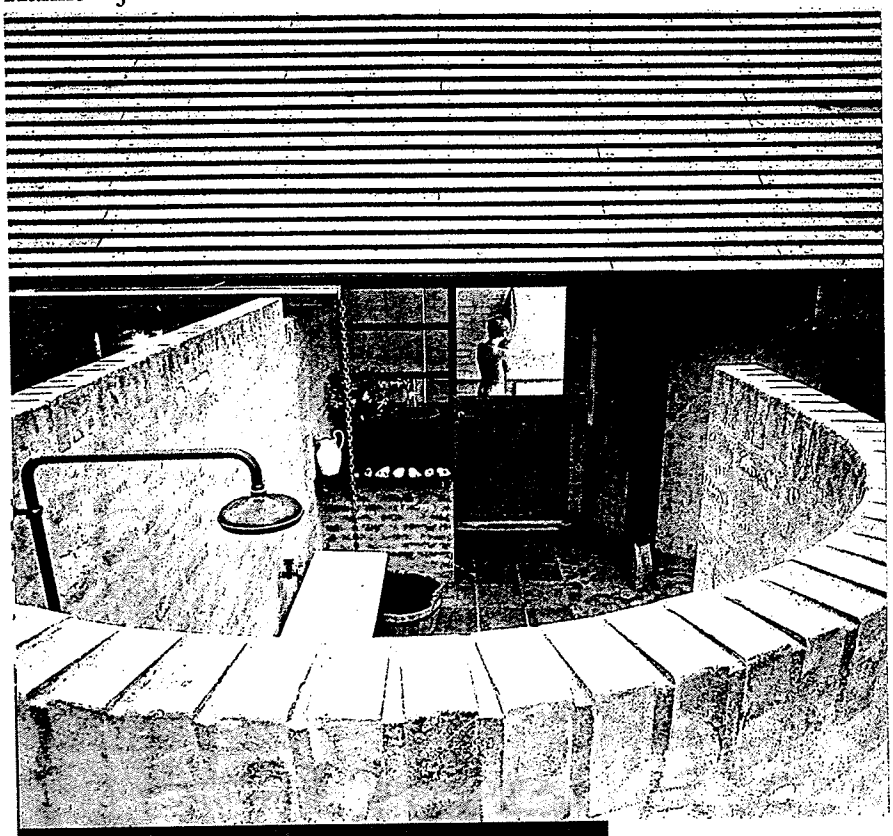

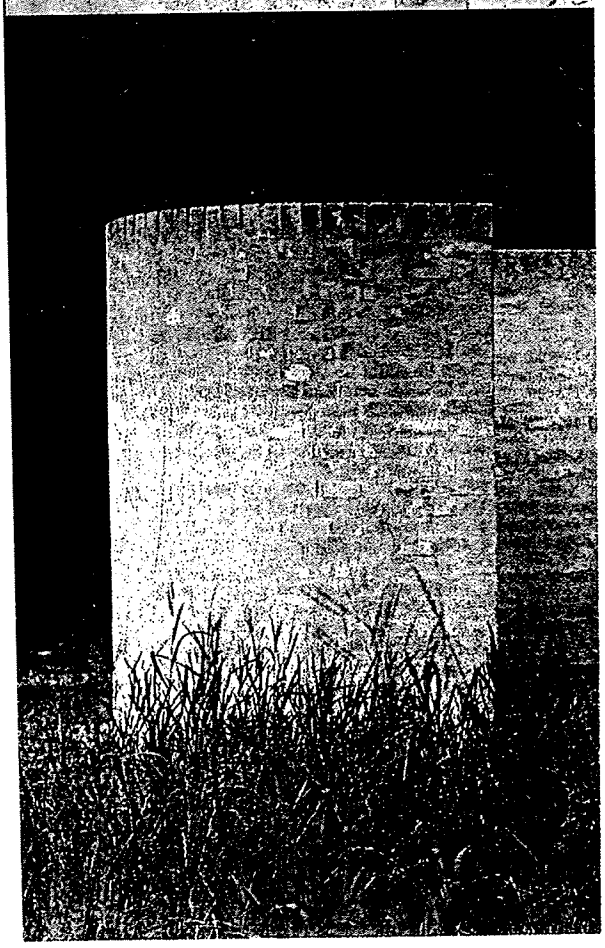

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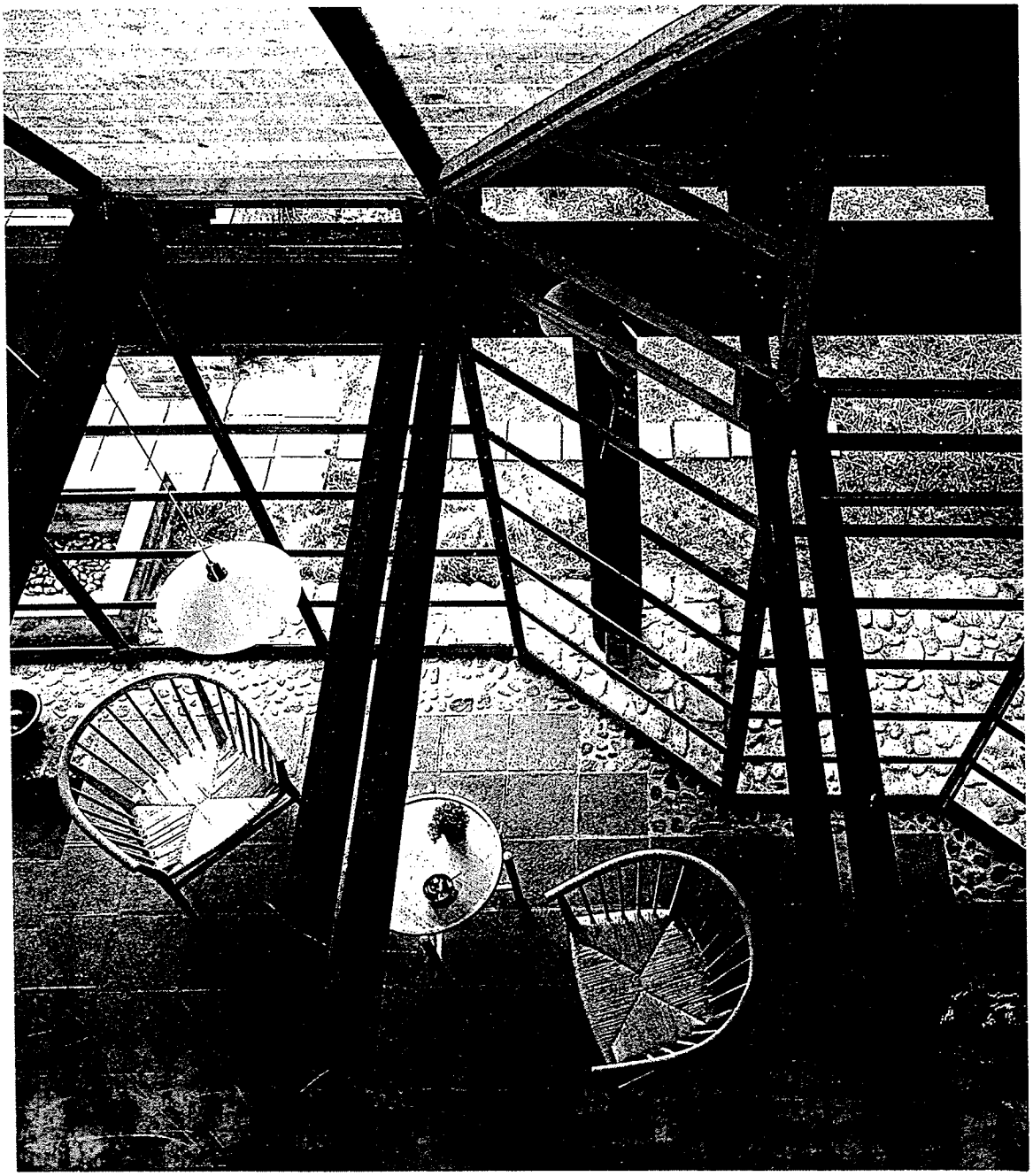
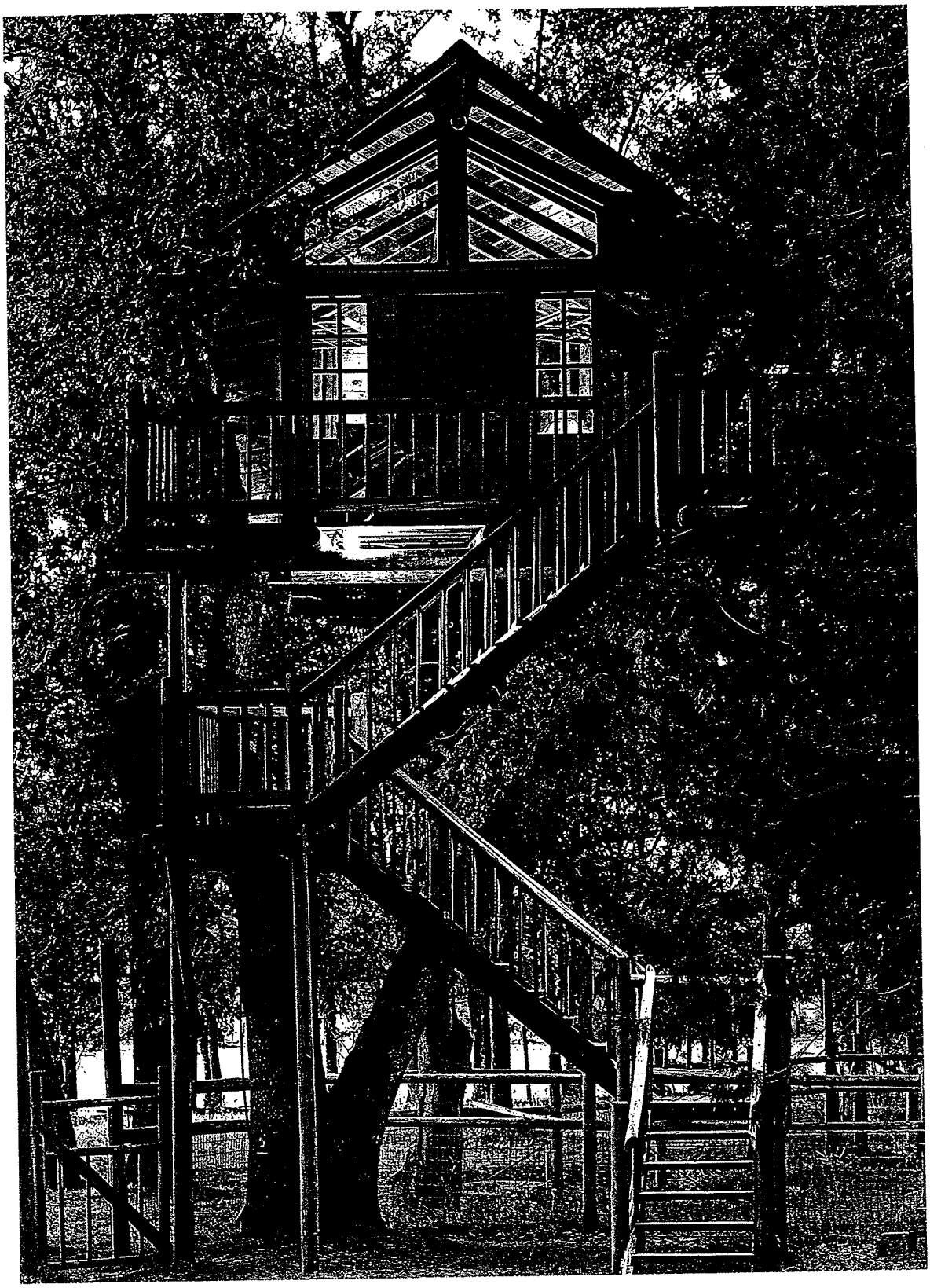
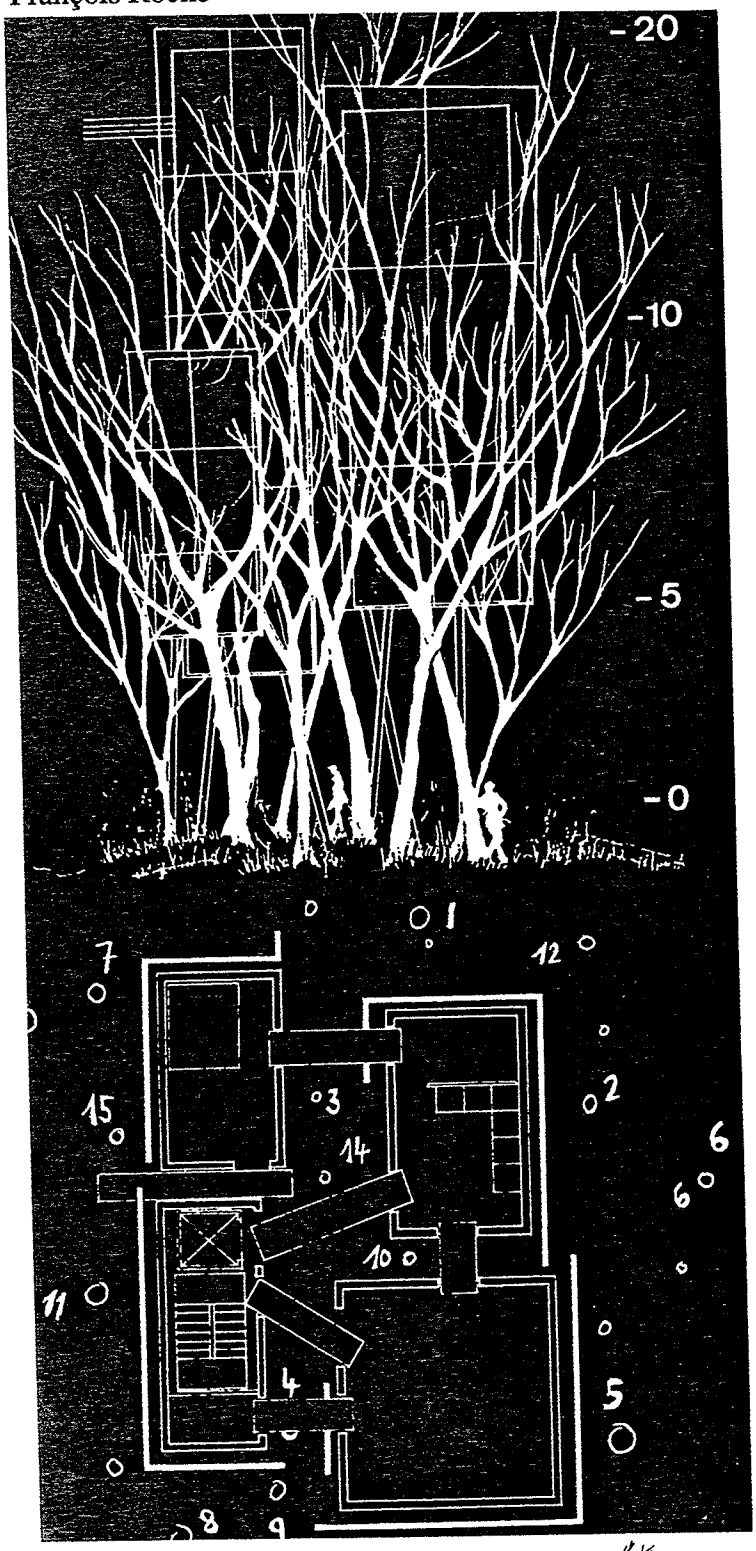
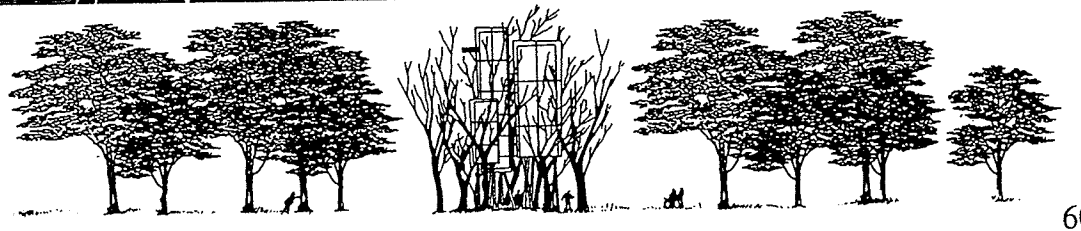


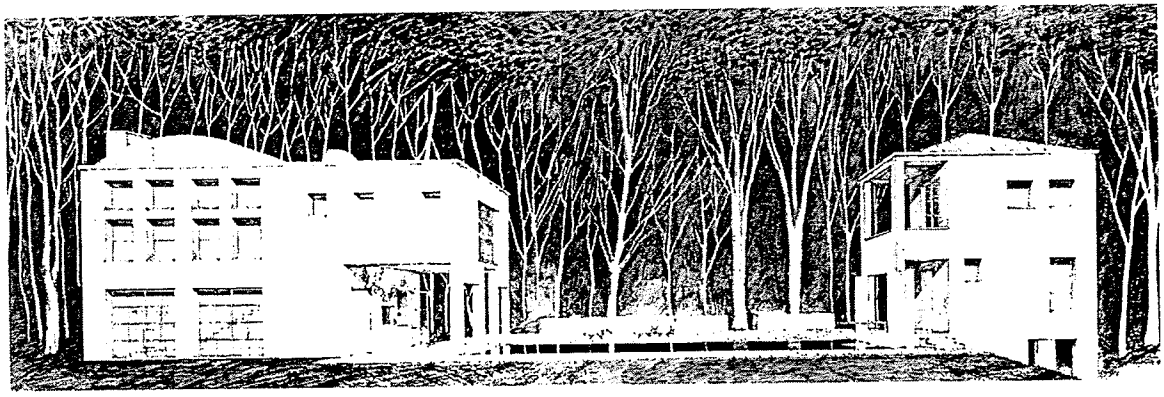
Michael Garnier

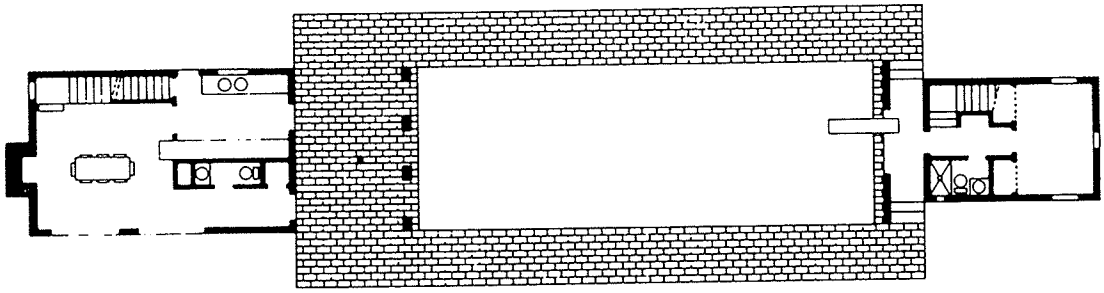


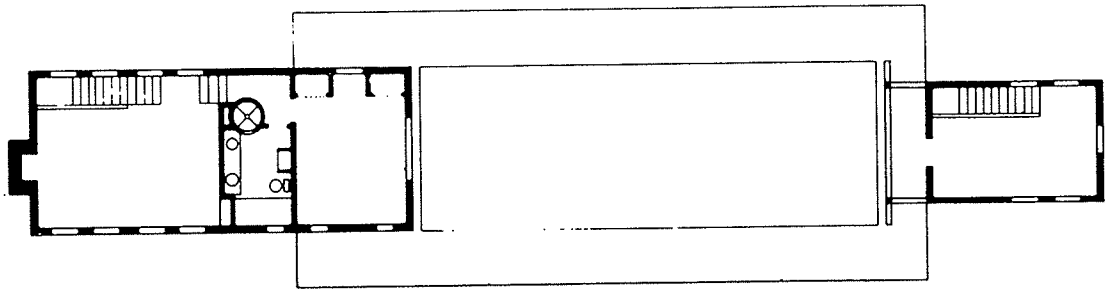
François Roche











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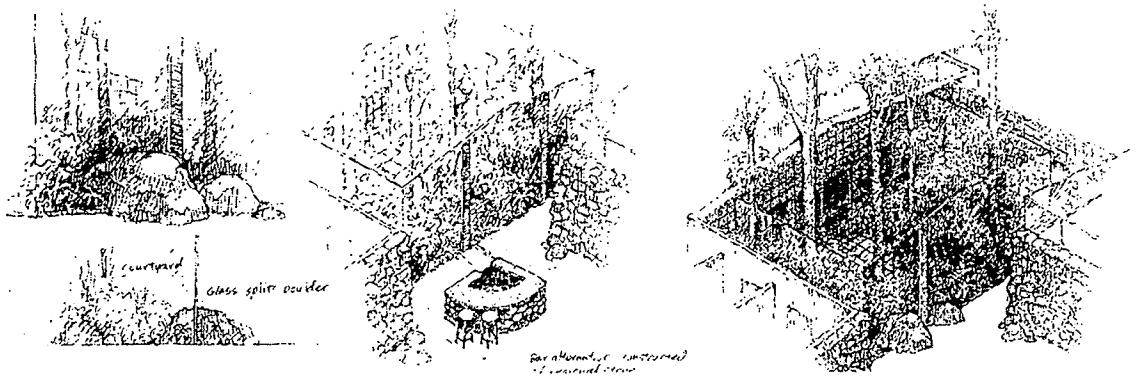
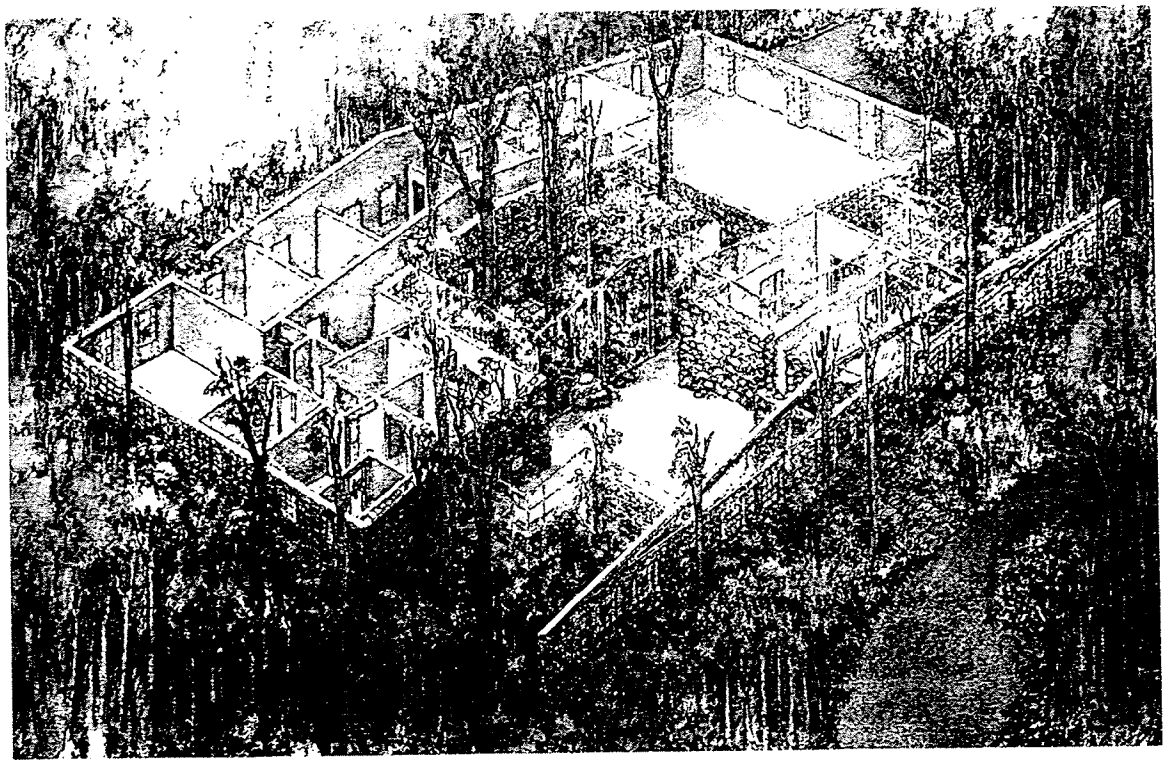
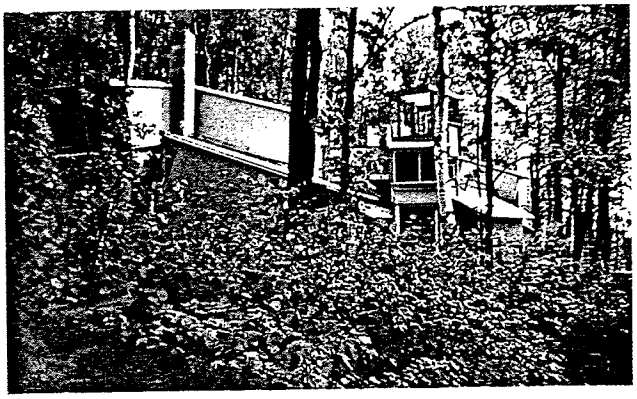
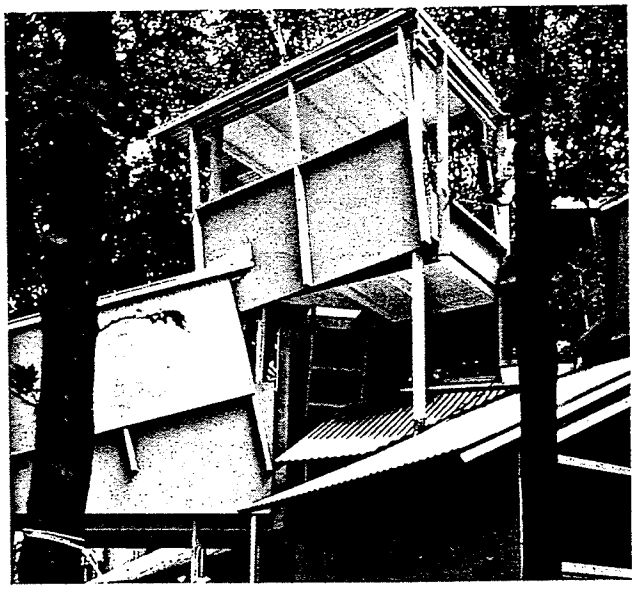
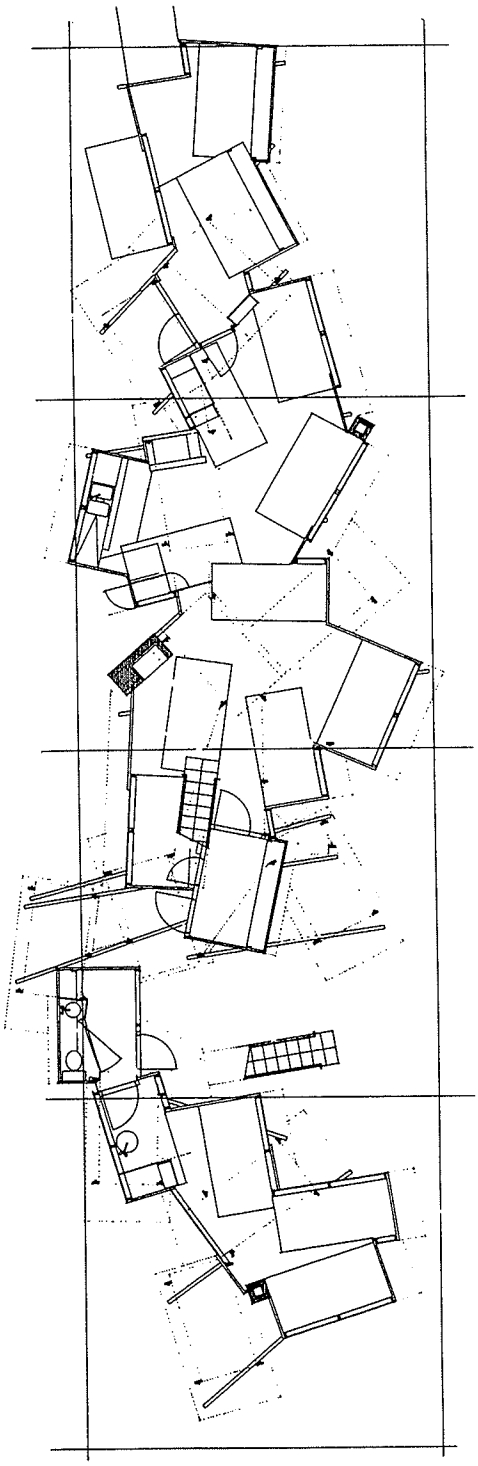




Carmen and Elin Corneil







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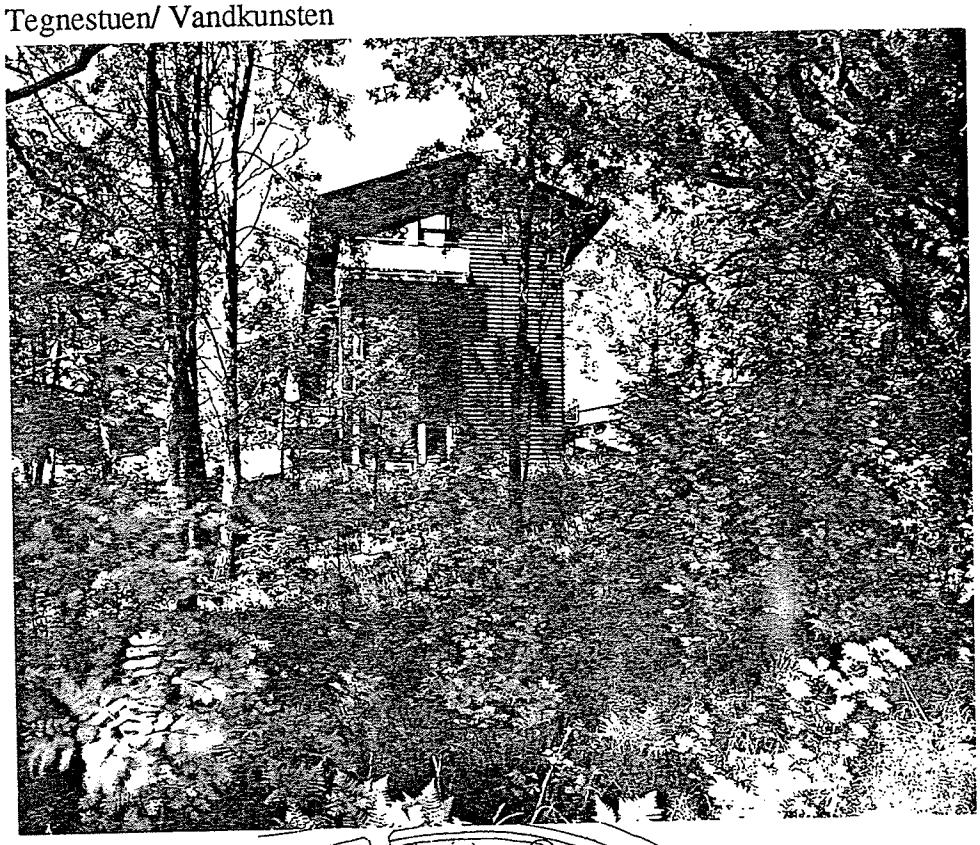

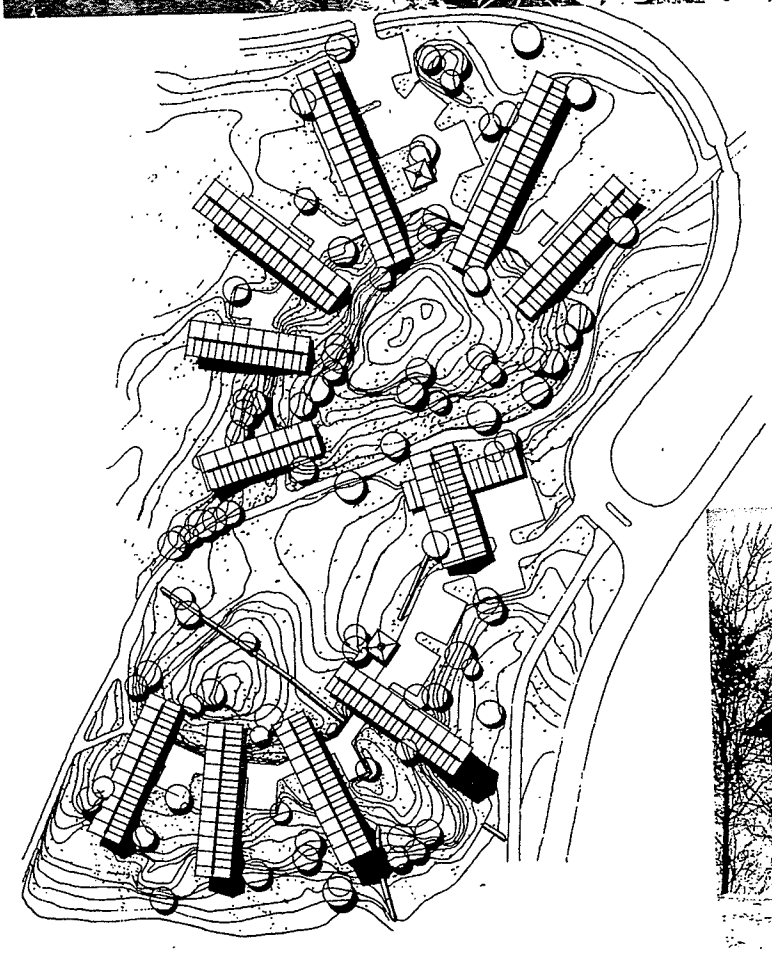

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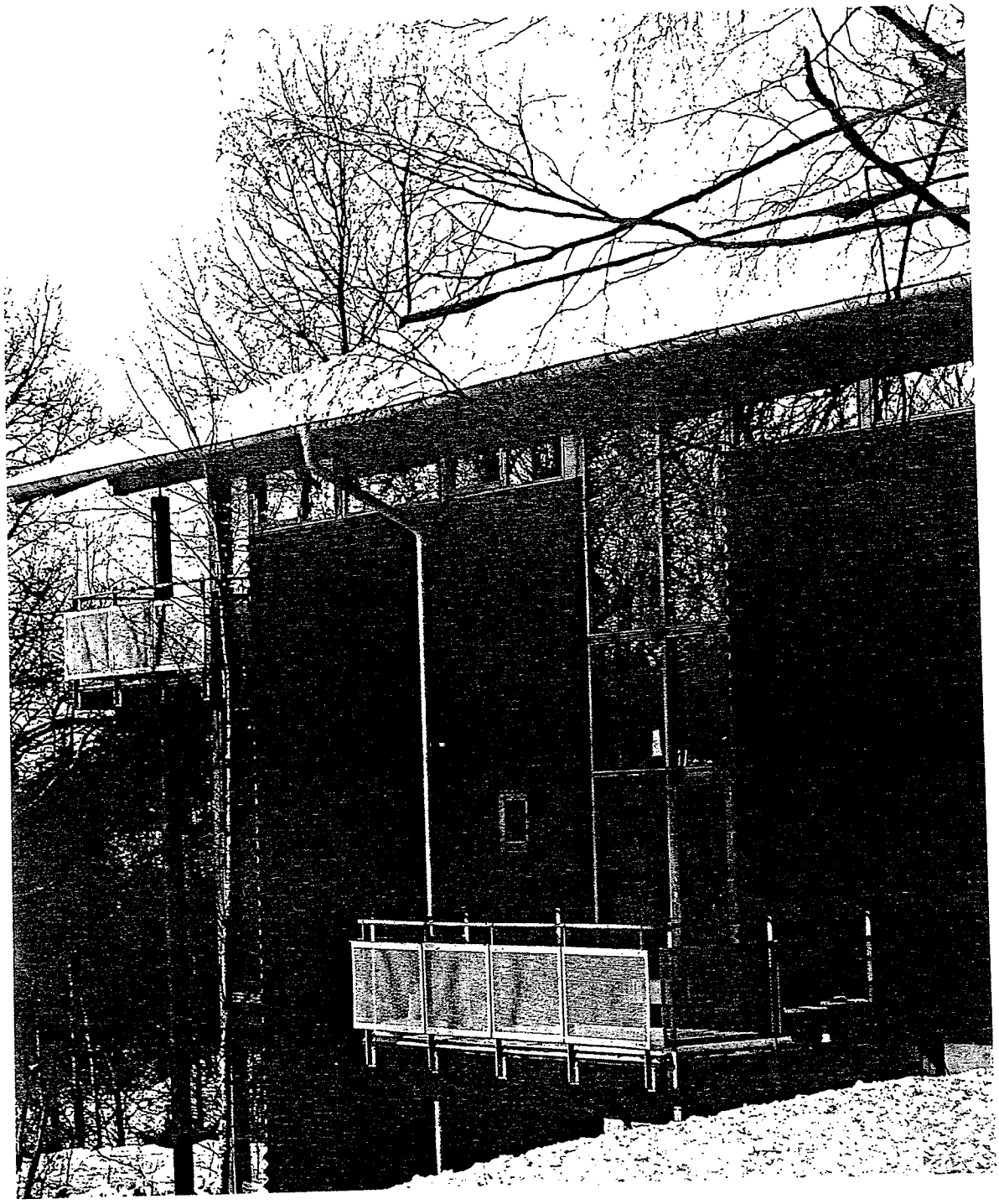

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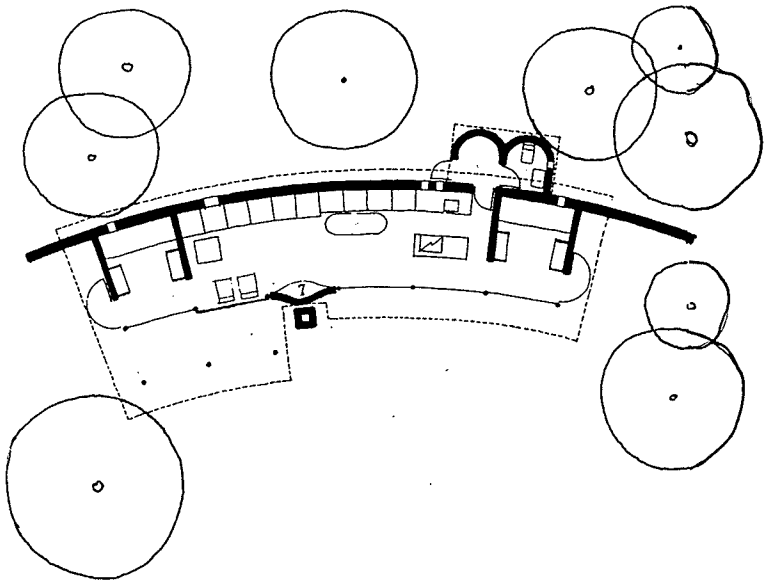

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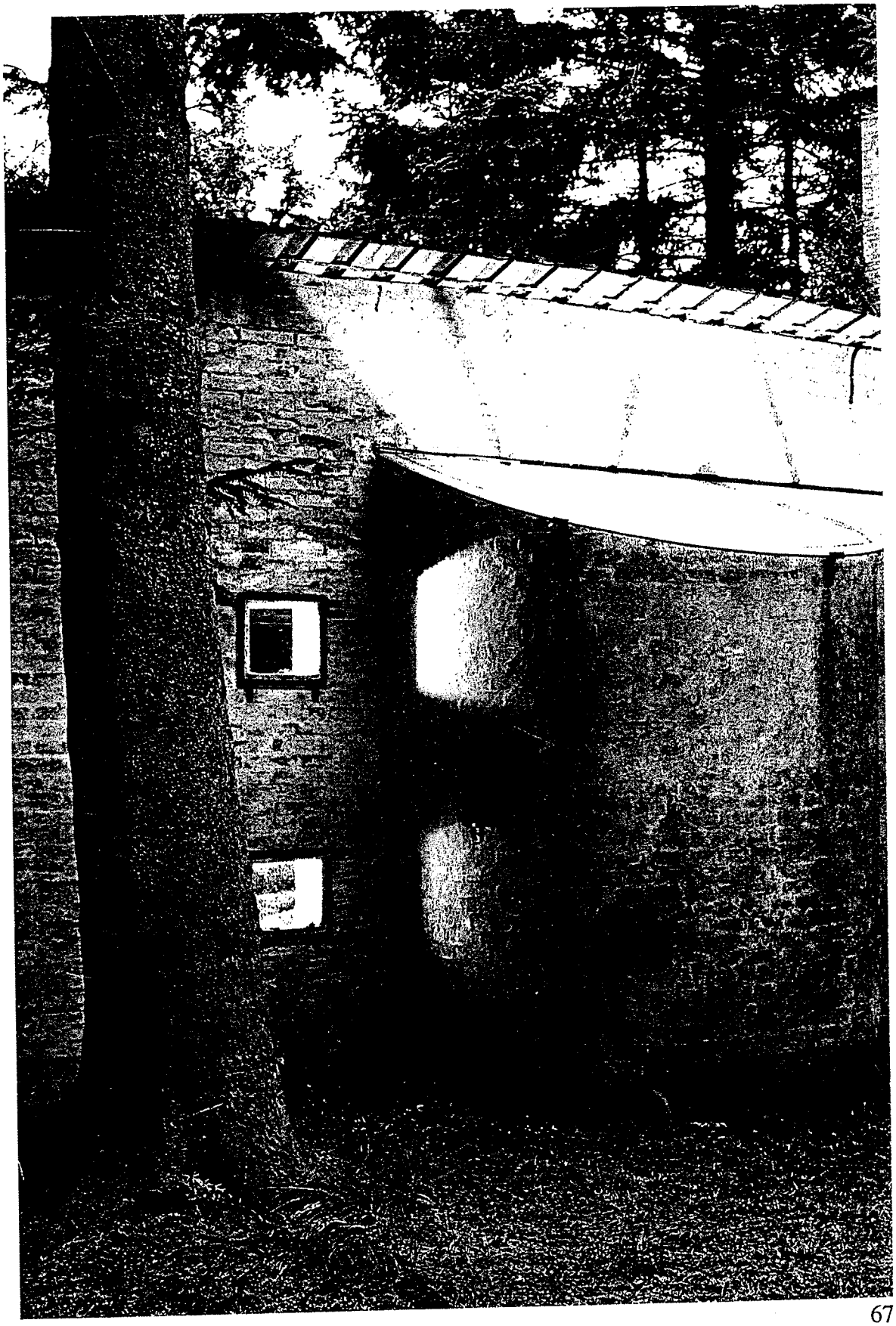

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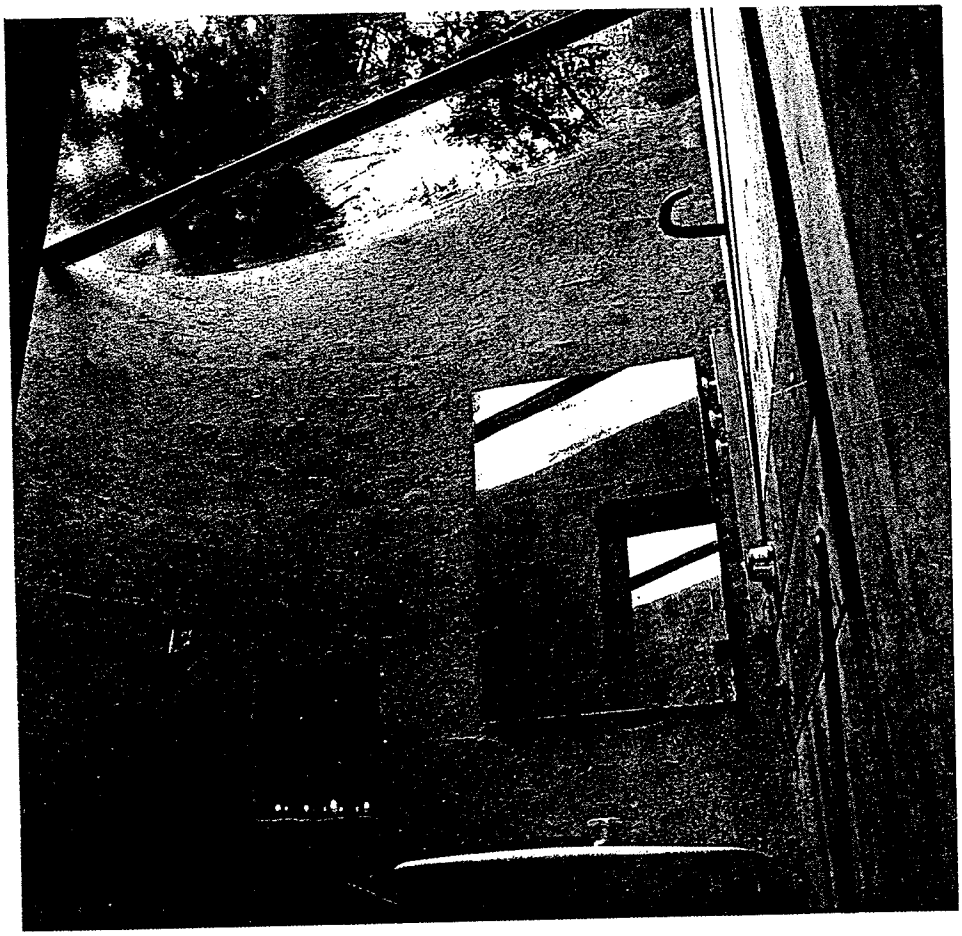

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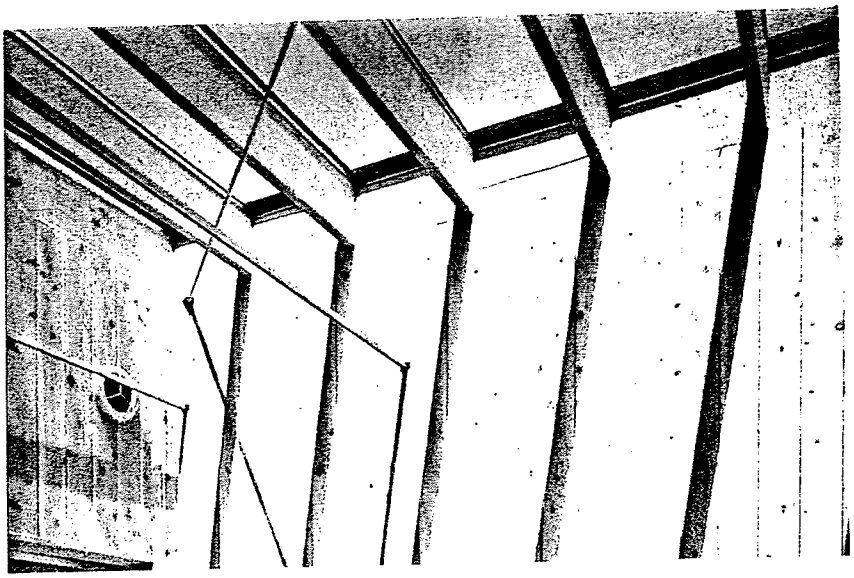
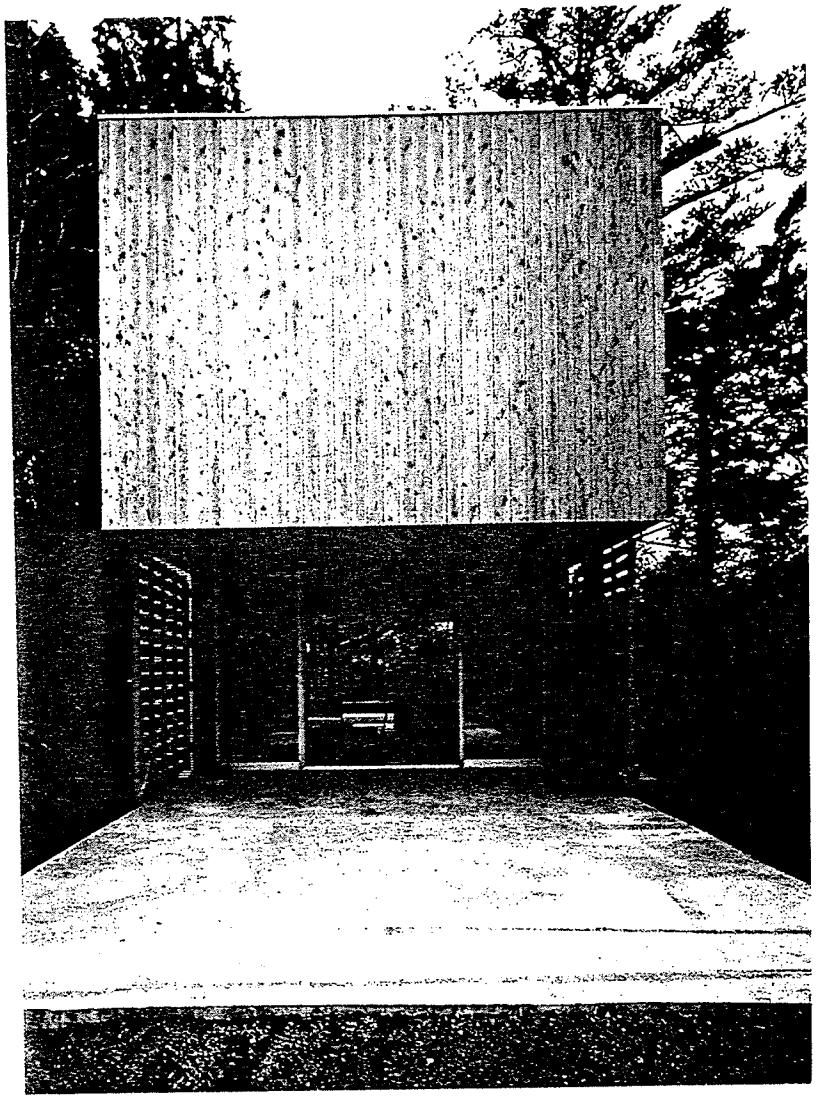
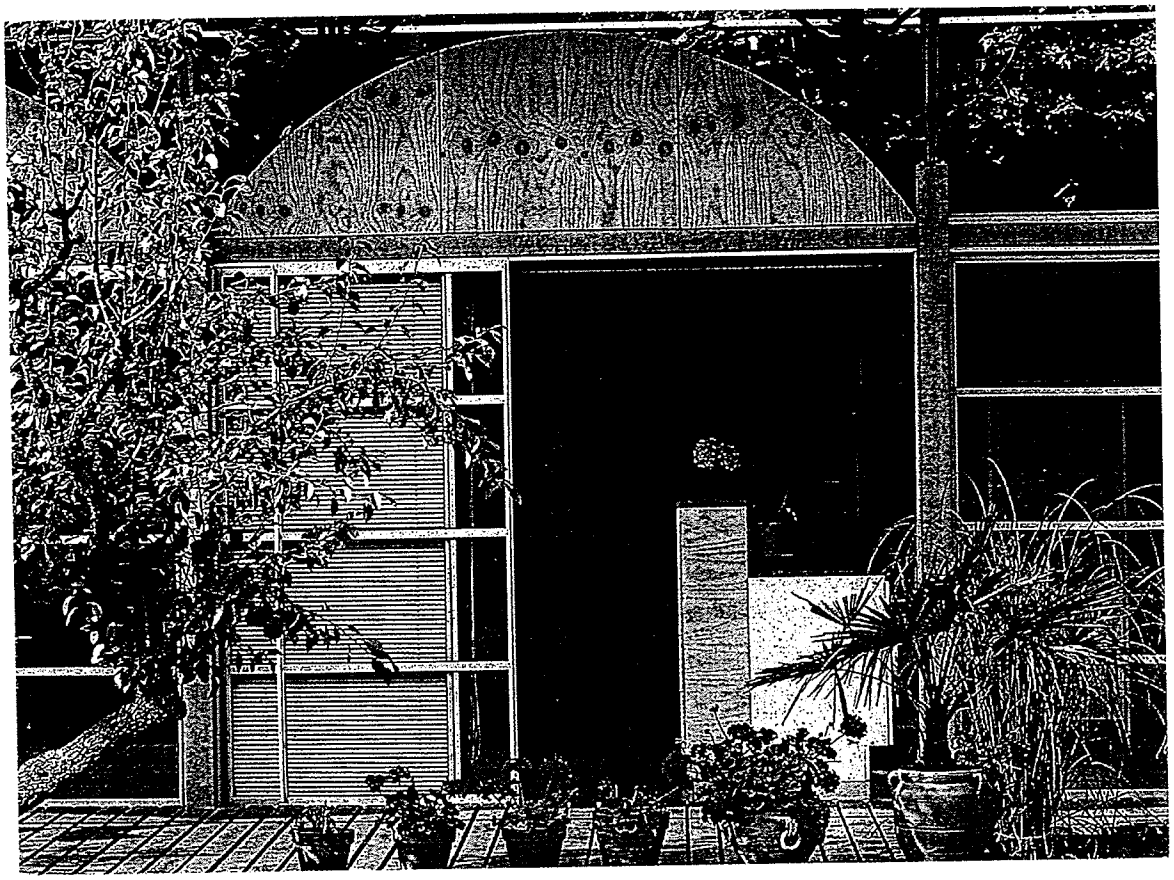
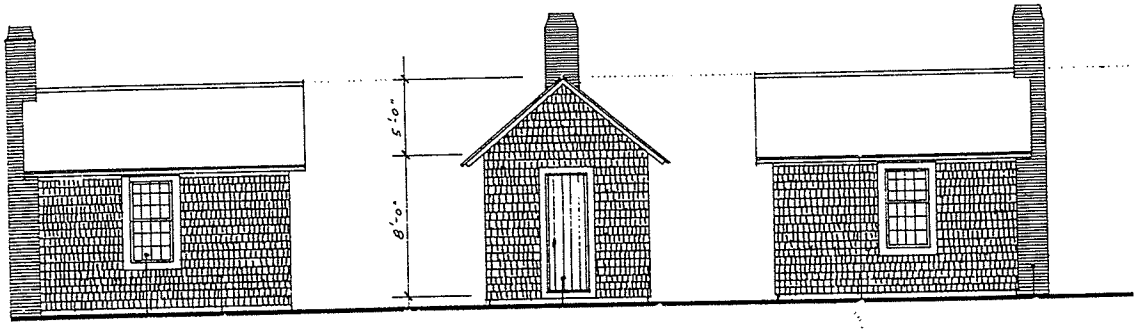




Jourda & Perraudin



Henry Thoreau



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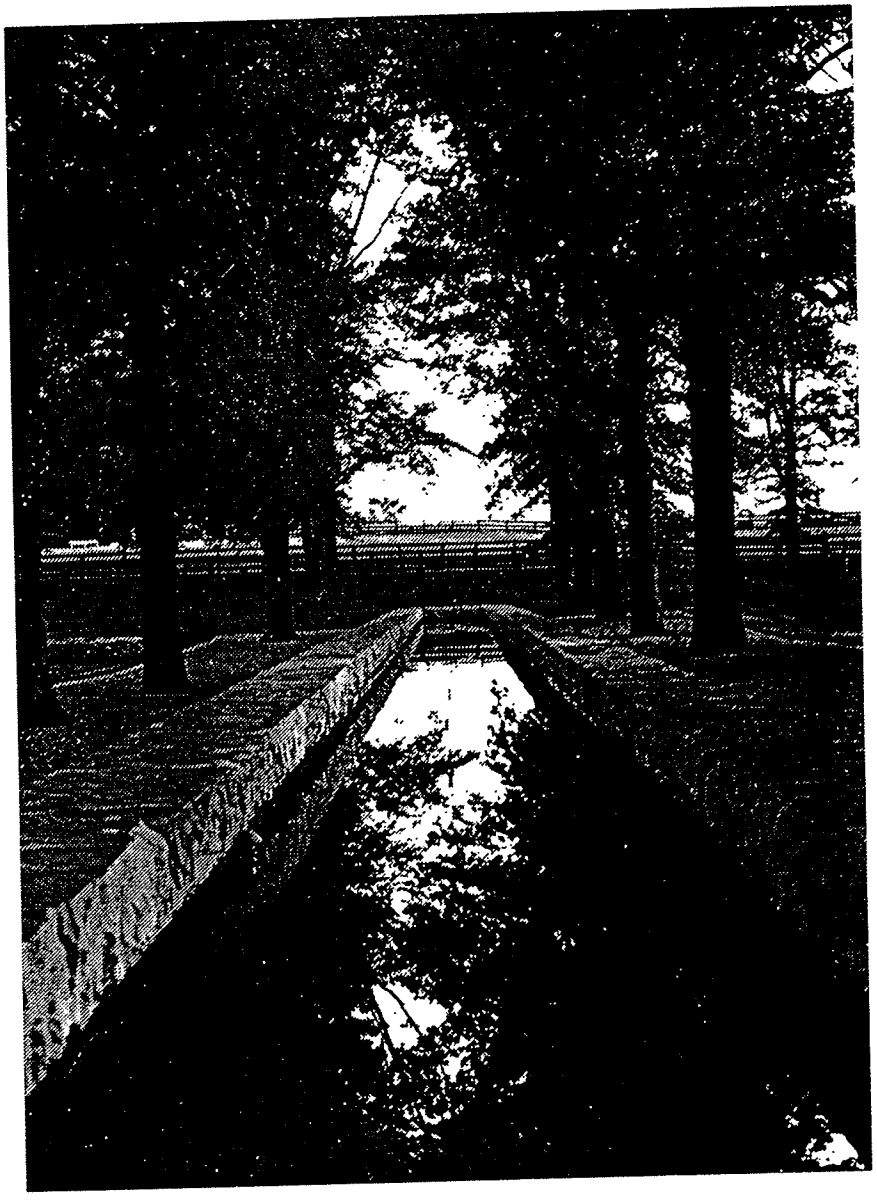

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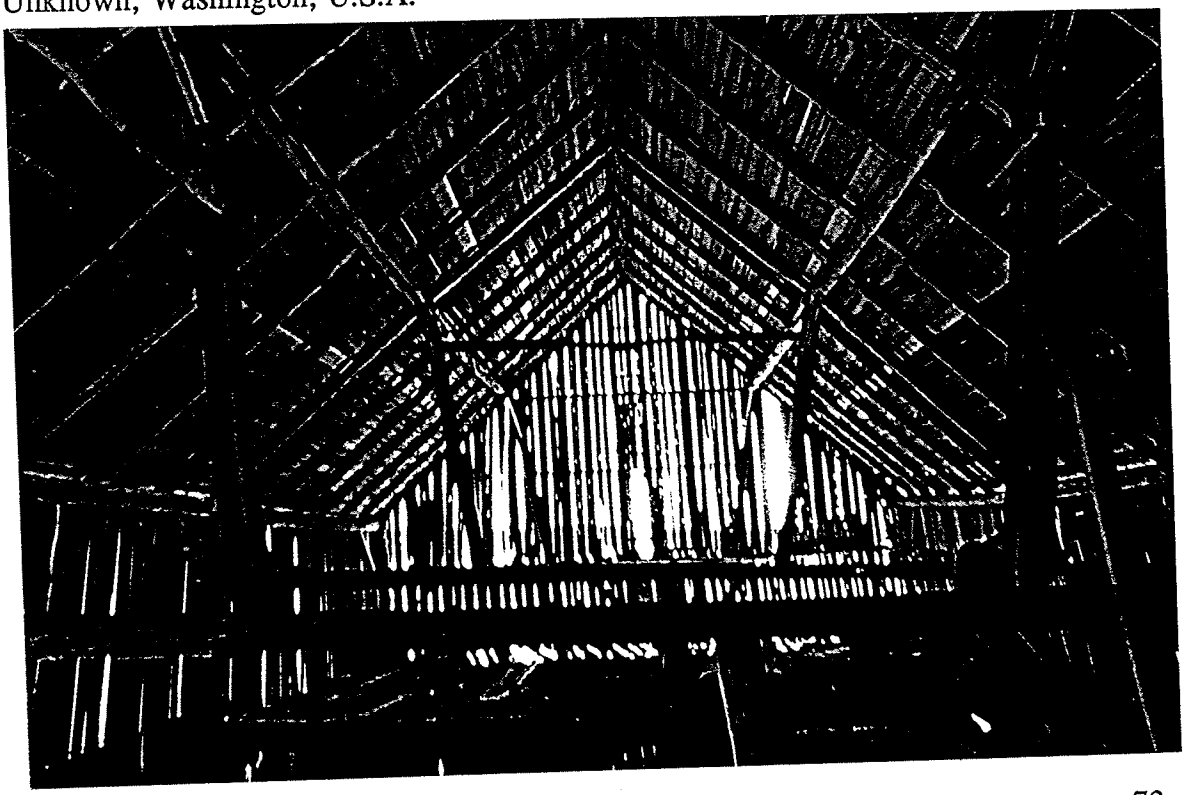

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2 Janet Wright, *Architecture of the Picturesque in Canada,* page 7.

3 Elizabeth Kassler, "Breaking Down The Man/Nature Interface; Martin Buber and Frank Lloyd Wright", *The Princeton Journal; Landscape,* page 30.

4 Andrea Palladio, *The Four Books of Architecture,* page 1.

5 Matila Ghyka, *The Geometry of Art and Life*, page 5.

6 ibid.

7 Robert Tregay and Roland Gustavsson, *Oakwood's New Landscape; Designing for Nature in the Residential Environment,* page 24.

8 Anne Whiston Spirn, "The Poetics of City and Nature; Toward a New Aesthetic for Urban Design", *Places; A Quarterly Journal of Environmental Design,* page 84.

9 Amy Willard Cross, *The Summer House; A Tradition of Leisure,* page 190.

10 ibid, Tregay

11 The conceptual ideas outlined by this practicum have been constantly evolving through exposure to architectural and natural issues independent of the Fort Whyte site. This site is the natural context within which the theories found herein were established.

12 Joseph Mashburn, "Living With The Land; A Case Study", *Modulus 20; Stewardship of the Land,* page 149.

13 Carl Hiebert, *Gift of Wings,* page 100.

14 June Fletcher, "Meet the Buyers", *Builder; The Magazine of the National Association of Home Builders,* July 1992, page 149.

15 Madelyn Wilder, "Housing for a Retirement Community", *Journal of Housing for the Elderly,* volume 11, number 1, page 72.

16 ibid, page 72.

17 Cynthia Cohlmeyer, *The Aspen Parkland and its Application to Landscape Design,* page 7.

18 ibid, page 17.

19 Patrick Nuttgens, *The Landscape of Ideas*, page 64.

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