ecocentrism and architecture - making of place

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ABSTRACT

The theoretical component of this Master's Degree Project develops an analogy between second growth forests and subdivision housing to argue that the human built environment is facing a crisis akin to the crisis facing the natural environment. The philosophy of deep ecology is used to suggest that the environmental crisis of the natural world and the crisis facing the human built environment are one and the same. Both are manifestations of an underlying cultural crisis – an anthropocentrism that denies the inherent value of all things in the world, their inherent relatedness to each other, and their context within a greater whole. The theory that this paper proposes, and explores in the architectural design component, is that the realization of a deeper, ecocentric (ecologically-centred) relationship with nature relies on the achievement of a deeper relationship with our own built environment.

Keywords: nature, architecture, deep ecology, ecocentrism, subdivision housing, anthropocentrism.

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TABLE OF CONTENTS

Abstract	III
Acknowledgements	IV
Introduction	1
part one: the theory – ecocentrism and architecture	
DEEP ECOLOGY	4
THE RESOURCE MENTALITY	10
LESS IS MORE	18
MONOCULTURE AND PLACELESSNESS	25
ECOCENTRISM AND ARCHITECTURE	33
part two: the design – making of place	
THE MAKING OF PLACE	39
Introduction	40
Site and Context	42
Design Process	46
DRAWINGS AND MODEL	53
AFTERWORD	66
References	71
Illustrations	77
Bibliography	78
Appendix	81

Introduction

Part one of this document presents a theoretical framework that is used to inform the architectural exploration presented in part two. In part one, the philosophy of deep ecology is introduced as a means of critiquing North American society's current relationship to nature. From within this framework, an analogy between second growth forests and subdivision housing is developed to suggest that the crisis that faces the natural environment extends directly to the human built environment, and that the basis for each is an underlying cultural crisis. The same resource-driven mentality which clear-cuts old growth forests and replaces them with second growth stands is shown to apply to the construction and marketing of subdivision homes. The economic abstraction and commodification of forests and housing are discussed through a critique of the cost-benefit analysis used as a financial decision making tool in both forestry and suburban development. Finally, the physical and experiential equivalencies of the monoculture environment of second growth and suburbia are explored, particularly in terms of the resulting lack of relationships and sense of placelessness.

Deep ecology is offered as a means of addressing the environmental crisis that faces both the natural and the built environment, through a paradigm shift from the dominant anthropocentric world view to an ecocentric, or *ecologically-centred* world view. An ecocentric worldview promotes the inter-relatedness of all elements in the world, a concept that can be applied equally to both the natural world and the built environment. The predominant understanding of a distinct separation between the two, and of humans from nature, is at the root of an all-encompassing environmental crisis.

The deep ecological worldview and the implications it holds for the future of the environment are explored from within the context of the human built environment. The concluding theory that this paper proposes, and that the architectural design component explores, is that one of the first steps in realizing the deeper, ecocentric, relationship with nature that deep ecology proposes is through the achievement of a deeper relationship with our built environment. This theory is explored architecturally through the design of a medium-density urban housing project in Calgary, Alberta, the results of which are presented in part two of this document.

part one: the theory - ecocentrism and architecture

Deep Ecology

"The central change we have to make is in the received and dominant conception of the earth and its life forms as raw materials for generalized production"[1]

Deep ecology is a social and political movement that involves a fundamental shift from an anthropocentric worldview (regarding mankind as the centre of existence) to an ecocentric worldview (regarding the greater biological community of interacting organisms, or the ecosystem itself, as the centre of existence).[2] In the anthropocentric worldview, humans are generally considered to be superior to other beings and in this hierarchical system mankind is considered to be in charge of all aspects of nature.[3] Through the dominant ideology of Western civilization, nature has become objectified. Human domination, control and exploitation of the Earth is encouraged in the name of progress and technological advancement, and nature is viewed primarily as a resource base for increasing economic growth and development. As a result of this view, the natural world can be abstracted into a series of unrelated economic or mathematical elements. This abstraction further allows humans to distance themselves from the realm of the natural, to the end that man is effectively removed from within the system and placed outside in the role of overseer. As William McDonough states in The Hannover Principles, our artificial ideas of nature enable us to "come up with truisms like balance and interdependence of nature and then we step back from them, assuming we can exclude ourselves from the equation. Then we imagine nature as somehow contained in our simplistic analysis."[4] Thomas Berry, an ecotheologian and promoter of deep ecology, observes that humans "have always perceived themselves as a mode of being of the universe as well as distinctive beings in the universe."[5] By ignoring the essential interconnectedness of all things in the natural world, humans are able to perceive themselves more as being *in* the world and less as being *of* the natural world that they are exploiting.

Arne Naess, a Norwegian ecophilosopher, coined the term deep ecology in 1972.[6] The word *deep* was used to describe the depth of problematizing and questioning of social and political practices, policies and values that deep ecology argued was necessary to address the ecological crisis.[7] Shallow ecology (consid-

ered *shallow* for its lack of depth in critiquing the causes of the current environmental situation) maintains an anthropocentric view of the world. Much of the thinking of shallow ecology is revealed in the concept of sustainable development as presented in the 1987 UN Brundtland Commission report, where sustainable development was defined as "meeting the needs of the present while not compromising the ability of the future to meets its own needs."[8] This loose definition allows room for interpretation and, by not directly addressing the current rate of industrial growth, is an essentially unecological concept.[9] As described by Alexander Wilson in The Culture of Nature, sustainable development has become a catch-phrase that endorses the status quo and justifies "the expansion of the nuclear industry, 'sustained yield' in forestry management, and limitless growth in productive capacity – all to further accumulate capital."[10] Shallow ecology allows for continued economic growth and development by attempting to address environmental issues of pollution and loss of biodiversity through reduction and mitigation measures. The environmental concerns of shallow ecology are generally motivated by, and articulated in terms of, current and future detrimental effects to human health and well-being, rather than by concern for a greater loss occurring within the natural world as a whole. For example, smog and urban industrial pollution control measures are initiated through concern for human health, and reduction in biodiversity is of importance primarily as a potential loss of genetic raw material for pharmaceutical and biotechnology corporations.[11]

Shallow ecology, by addressing only the symptoms of the environmental crisis that affect utility for humans, allows for the separation of the symptoms from their cause. It permits us to pursue our current lifestyle, rather than suggesting that our lifestyle is itself at the root of the crisis. Shallow ecology promotes the notion that we are in the natural world by recognizing that the health of natural world has an impact on our own well-being, but at the same time suggests that we are not a part of the natural world by implicitly allowing for its

continued destruction. Shallow ecology accepts the abstraction of nature through an implicit denial of humanity's basic relationship with it. The result of this approach is the further separation of humans from the world around them and thus of humans from recognition and responsibility for their actions. Humans have become fixated on comfort and convenience, and in our desire to maintain or improve our standard of living we allow ourselves to believe that our ingenuity will provide a means to render Earth's resources inexhaustible or infinitely reproducible.

Thus, it is accepted within the deep ecology movement that the visible effects of the environmental crisis – industrial pollution, acid rain, habitat loss, resource depletion and species extinction, are only *symptoms* of the crisis itself. As a subsuming philosophy, deep ecology encompasses all the symptoms and seeks to address them by bringing about the shift to an ecocentric view of the world, one in which every element of nature, both human and nonhuman, is recognized as possessing its own inherent value. The deep ecological concept of value does not rely on a human-centered understanding of value through economics or aesthetics, but acknowledges the innate worth of all living things in and of themselves. This understanding of value is made more rich through the essential understanding of the complex relationships that exist between all living things in the world: "all entities are constituted by their relationships. To the extent that we perceive boundaries, we fall short of a deep ecological consciousness."[12] This understanding brings with it the recognition that the whole is greater than the sum of its parts.

This is a radical change from the dominant anthropocentric view of nature as an entity separated from us and comprised of a series of definable resources. By suggesting that the environmental crisis has developed out of the very framework of Western society, deep ecology then argues that the root of the crisis can only be

addressed by a fundamental change to society, which can only be brought about by a fundamental shift in world view. As George Session states in an introduction to deep ecology "our entire system of orienting to nature must undergo a revolution."[13] As a solution, deep ecology proposes that humans fundamentally rethink their perception of the world to place themselves within, but not central to, what is a complex natural *whole*. To achieve this is to de-abstract nature by recognizing it as an inter-related system of which humans are a part. However, for such an understanding to take place requires more than simply an intellectual appreciation the interrelatedness of all things, it requires that it be felt at a basic, experiential level: "intellectual conclusions alone are not sufficient to bring about a basic shift in one's attitude toward nature. Such *a shift requires a change of consciousness, an intuitive sense of identification with all things."*[14] *It requires* an embodied, experiential sense of identification with the things around us.

To achieve such an identification with the things around us begins to approach the realization of Edmund Husserl's concept of the *Lebensweldt* or "life-world." In Husserl's notion of the life-world, nature is considered to be "the world of possible experiences and possible knowledge."[15] By Husserl's definition, nature encompasses every element of the world around us – human and nonhuman forms, built forms and less tangible elements that he terms "presentifications." Presentifications are "explicit acts of rendering consciously present that which is not 'itself present'."[16] Through presentifications, Husserl allows for the inclusion within nature of a realm of experience created purely through memory and imagination. This brings another dimension to the understanding of nature, through the experience of things that are not physically present but are experienced through the power of memory (as a link to a past experience) and imagination (as a link to a possible future experience). Husserl's life-world is consistent with deep ecologist's desire to move from the abstraction of knowing the world through objective experiences to a knowledge of the world gained through

perceptual experiences. Nature as life-world then begins to suggest a means for applying the holistic deep ecology view of the natural world to the architecture of the built environment.

The Resource Mentality

"Over the past two hundred years the natural world has been inscribed with the logic of production and consumption..."[17]

As deep ecologists argue, the anthropocentric worldview promotes a resource-based mentality that reduces nature to a vast collection of identifiable, separate resources existing primarily for human exploitation. Nature then exists for humans to consume, either physically or experientially, and its possession of any greater inherent value is unrecognised. The same has come to be true of our relationship with the built environment - in particular the built environment of home, which is typified in North America by suburban tract houses. Rather than being a meaningful element of our daily lives, a rich set of relationships that enhance our private and civic lives, the built environment has become governed by a resource mentality that has reduced it to a series of constructed resources for human consumption.

Our relationship with our built environment and to the things around us has become as shallow as our relationship with nature. Our reliance on things like fast food and disposability reduces a meal from what was once a rich series of relationships (the growth of food, the purchase, preparation and consumption of food, accompanied by conversation and followed by the cleaning and putting away of the utensils and dishes) to a quick and shallow intake of calories for sustenance. That the built environment has come to be considered in the same way is reflected most clearly in the mass development of subdivision housing. Suburban houses are constructed as quickly and cheaply as possible and with the same resource mentality that strips away the rich set of relationships that make a forest and see in its place "vertical assemblages of lumber."[18] The resource-oriented way of thinking that governs the forestry industry also controls the design and creation of the human built environment of suburbia – and the loss in each case is a rich series of relationships.

The practice of forestry began with the idea that "forests are perpetual producers of commodities."[19] As a result, many of North America's last stands of old growth forest have been destroyed for their lumber value and replaced with agricultural plots of trees called second growth forests. Their replacement is in the form of biologically sterile monocultural "tree farms," typically comprised of one or two commercially valuable species.[20] Species are chosen based on their rate of growth and their tendency for a straight trunk, which can be converted into lumber more efficiently. The resource mentality strips away the complexity of relationships that exist within the forest and reduce it to a group of trees amounting to a profit. In this way, the forest becomes "a commodity to be managed, 'enhanced,' and exploited: either as an agricultural crop to be 'harvested' or as designated areas where 'the wilderness experience' serves as a human recreational commodity."[21] The concept of an ecosystem of intrinsic value is denied by an economic equation of harvesting and planting. The rich complexity of interdependent lifecycles and the unique diversity of species the forest sustains are omitted. Armed with a quantifiable, definable equation, humans are able to harvest centuries old forest ecosystems and replace them with new second growth forests with the belief that nothing has been lost. The concept of *value* and *loss* are defined only within the simplified realm of economics.

Comprised of one or two species of even-aged trees planted in organized rows, the resulting tree farms cannot biologically or experientially be considered *forests* in the same way as the natural forest they replaced. Second growth forests are a commodity, and the individual trees that make them have truly become nothing more than the assemblage of lumber that the virgin forest was mistaken for. They are managed, both biologically and economically, and harvested in the fastest life cycle that is possible using the most efficient means available. The driving force is economic profit.

The same motive fuels the construction and marketing of the suburban development. The resource based mentality that consumes a healthy forest ecosystem to replace it with a more rapidly marketable product leads to the manner of thinking that constructs miles of mass produced houses as the primary habitat of the human environment. Suburbs, typically comprised of one or two commercially viable house types, begin to approach the "biologically sterile monocultural tree farm" environment of the second growth forest.

The evolution of home as a commodity began in the first of two significant explosions of suburban growth in North American history. The first period took place from roughly 1920 to 1930, ending with the arrival of the Great Depression in 1930; the second began in the aftermath of the second World War and continues to the present.[22] Contributing to the initial surge was the improvement of public transportation systems and a marked increase in private automobile ownership,[23] both of which allowed people the means of escaping city cores that were becoming increasingly industrialized. Accompanying these advances was the widespread use of domestic electrification, which had a considerable effect on household appliances and means of communication.[24] By 1930 domestic electricity had reached 85% of American homes,[25] many of which were now detached, single-family houses in the popular garden cities model.[26] In just over one decade electricity had become common place in the homes of Americans living in and around urban centres, rapidly transforming their way of life.

It can be argued that it is at this point in the history of the human built environment that Martin Heidegger's concept of "standing reserve" suddenly becomes realized by the majority of the population. Heidegger suggests that "the roots of our detachment from nature [occurred] in the moment we began to extract energy from nature, storing it to be consumed at will with no sense of the Earth's cycles."[27] Energy in this sense is

then seen as *standing reserve*, as something that exists for humans to use up. Heidegger's view of this critical time, which relates directly to the deep ecologist's underlying critique of the anthropocentric world view, is one where "the world is no longer something to partake in, but rather [is something] supplied for consumption."[28] The development of this world view can be argued to have taken root in the thinking of the mass population for the first time during the early surge of subdivision housing, when all of its implications suddenly applied to their every day life at its very centre - the now widely available single family home.

This way of thinking was further reinforced in the second explosion of suburban growth that followed WWII. North America's progress in the area of mass production technology, developed out of the urgent need for weaponry and machinery for the war effort, changed the built environment forever. High on its technological prowess, North America sought to house its masses, many of them returning veterans, using new standardized assembly line technology.[29] The most notable of the suburbs constructed in this post-war construction fervor is Levittown on New York's Long Island, constructed in 1949-50 by developer and builder William Levitt. Levitt's regimented use of standardization and economies of scale led to an incredible rapidity of assembly, reaching at its peak a rate of 1 house every 15 minutes. The resulting consumer affordability led to the astounding financial success of Levittown,[30] which was for Levitt the primary measure of its success.[31] From Levittown on, low cost and high speed production became the primary consideration, and housing, like nature before it, became abstracted into a basic economic equation.

In the construction of a new subdivision a developer must consider the house as a profit maker, a marketable commodity. Decisions made at the design stage are purely economic, which is reflected in the final built form. The uniformity of the subdivision reflects a desire to reduce construction costs by maintaining a

limited variety of repetitive construction steps involved in house building. "Undoubtedly conformity was a predetermined characteristic of these subdevelopments...if for no other purpose than enhancing and maintaining construction efficiencies."[32] Economic pressures limit the developer to one or two house types and allow variance of appearance only, in applied trim and colour. The architectural expression of house types to be used in a development is also an economic decision, and is based on which house types balance an ease of construction with a high likelihood of wide public appeal. The regularity of house types chosen in subdivision developments, considering the vast landscape and climate variations over the geography of North America, proves just how strongly bound the built form is to the economic equation that drives the development.

In Making a Middle Landscape, Peter Rowe identifies six house types representative of the vernacular realm of single-family housing constructed since the boom of 1920, four of which have become commercially viable in North American subdivisions: the bungalow, the colonial revival, the ranch, and what he calls the figured compact plan (a contemporary hybrid of the planning of later ranches and the exterior expression of the colonial revival).[33] Perhaps the most successful of these house types in suburban development are the colonial and the ranch style. From the point of view of construction economy, the colonial was a favorite due to the "comparative flexibility with which the exterior appearances can be varied without changing the layout."[34] The popularity of the ranch style is attributable to the ease with which its design and floor plan could be simplified, making it more lucrative for construction. The ranch house "could be built anywhere with any orientation; the rancher's inexpensive, single-story plan became the developer's dream."[35] These two house types most successfully meet both of the developer's requirements - ease of construction and marketability through a wide public appeal. Like the one or two commercially viable tree

species in a second growth forest, the colonial and the ranch style house are chosen purely for their profit margin.

The economic equations that have reduced the house to a commodity also dictate the limited diversity of the houses that can profitably contribute to a suburban environment. To maximize the economic equation, a developer must construct as cheaply as possible a product that accommodates the most number of people. The result is the repetition of a generic house plunked on every available piece of cheap land in North America. What is built expresses "the value of real estate experts but never that of the new home owner."[36] The lack of concern that the subdivision house must show for the individual in order to be successfully marketed to the masses also applies to landscape, orientation, climate, and any existing urban fabric. The material expression of home and the rituals of daily human life that it should reflect become simplified into repetitive plots of tract houses isolated from a larger context of human life. Both the forest ecosystem and the human built ecosystem have been transformed into mathematical equations of maximum profits in minimal time with a minimal investment. Like the forest from which it is constructed, suburban house development is strictly ruled by a resource mentality. As long as we deny an understanding of nature as a valuable whole, we deny the possibility of establishing for ourselves a richly interrelated built environment within it.

The driving force of suburba design and construction is contained in a simplified economic understanding of their eventual worth. As a commodity, the premise of the subdivision house has become that of an object that can be built, unchanged, in the quickest time at the least expense in the greatest number of environments. As a house for anyone in the realm of anywhere, the suburban house, like the tree in a second

growth forest, has become one in a monotonous series of parts that don't add up to a whole. The individual house as a commodity supersedes the ideal of homes within a greater human context.

Less is More

Table 1

Underlying the abstraction of the natural and built environments is the marketing research and financial analysis that drives human consumption. Essential to the economy of planting and harvesting of second growth forests and the construction and marketing of suburbia is the financial *cost-benefit analysis*. In the case of the forestry industry, a cost-benefit analysis is applied to determine the cost of harvesting an old growth forest and replacing it with a stand of second growth forest versus the immediate and long term profit. Also considered may be the cost versus the benefit of leaving behind patches of genetic stock to contribute to the regeneration of the next forest, or patches as a recreational and scenic amenity for the public. Subdivision developers carry out cost-benefit analyses in a similar manner by considering the cost of creating amenities within a subdivision, such as a golf course or a lake, versus the benefit this will have in terms of the marketability and long-term profit of the development. The same reasoning and economic number crunching are carried out in both the economics of forest harvesting and the economics of house construction and sales, to the exclusion of issues such as ecological health, species diversity, spiritual well-being, and other less tangible components of the natural and built environments. These issues are removed from what has become a purely economic equation.

The issues surrounding the managing and harvesting of forests are decided by forest economists who assign an economic value to the various human uses of the forest and then plug these values into a cost-benefit analysis. According to <u>The Economics of Forestry and Natural Resources</u>, when considering the economic factors surrounding the harvesting of an old growth forest, the following equation is used:

$$dW_M = p^c_{g41} + p^c_{g41^{*}g} / [(1 + r)^{t^{*}g} - 1] - Y > 0$$

where, "to harvest the forest and use the land for efficient wood production [establishment of second growth] is socially profitable if the discounted sum of the current profit p^c_{g41} from harvesting the forest, plus the current profits $p^c_{g41^{\cdot}g}$ from all future rotations, if positive, exceed the total willingness to pay Y for having the virgin forest saved."[37]

Y in this equation is a mathematical unknown because it represents society's *subjective value* of virgin forests, a value that might change from generation to generation. In other words, if society considers wilderness itself to be of no value, as wildlife habitat, or in and of itself, then Y becomes zero and is effectively removed from the equation. On the other hand, if society considers wilderness to be of great value then it is willing to pay to see it remain untouched. This payment may be in the form of media and public backlash, and, in cases such as Vancouver Island's Clayquot Sound, interruptions to the labour of harvesting through public demonstrations. This societal *payment* translates into an economic cost to the forest industry, both through an inactive labour force and a possible reduction in pulp and lumber sales. The forestry company may address this sales slump with a media campaign of their own; representing a further cost to them. Based on this equation, the economic benefit to cutting the old growth forest may exceed, be balanced by, or be outweighed by, the value of Y as an economic cost.

This cost-benefit analysis takes into account multiple-uses of the virgin forest, where the value of Y may require a compromise in which a portion of the forest is harvested while a portion remains for its recreational, scenic or habitat value. The forestry industry has allowed for the existence of Y, society's *subjective* value of virgin forests, or, from a deep ecology perspective, the *inherent* value of the virgin forest, and then transformed it into an *objective*, tangible, economic value. Whether or not, when, where and how much of

a forest will be cut is ultimately determined by an abstracted number derived from an equation that through its very construction abstracts nature. The forest ecosystem in its entirety is blurred and refocused using the anthropocentric lens of a mathematical equation.

The same economic premise foresters use to determine how much of a forest is left unharvested is used by land developers to make decisions regarding the amount of land left for amenities in a new subdivision development. The primary benefit for developers in providing amenities is greater revenue. An economic value is predicted for various features, such as lakes, golf courses, and expanses of green space, and these values are plugged into a cost-benefit analysis that weighs the cost of developing the chosen amenity versus the increased net revenue that it will provide.

Table 1 illustrates a simplified version of this process by comparing the 1996 cost-benefit breakdown for a lake amenity subdivision development in Calgary to that of a standard, no amenity subdivision development under the same conditions.[38] In each case, the developer is begins with a total of 640 acres of land, 12 of which are set aside by the City of Calgary as "environmental reserve,"[39] leaving 628 acres available for real estate development. In the standard development, all 628 acres can be considered as land for housing, while in the lake amenity scenario, 60 acres are set aside for the lake leaving only 568 acres remaining.[40] The 60 acres set aside for a lake represents a *cost* in terms of a loss of land on which to develop revenue-generating housing and a direct cost via the physical construction of the lake. Within the larger scheme of the cost-benefit analysis, however, it offers a greater benefit to the developer by acting as an amenity that the home-buyer considers worth paying for.

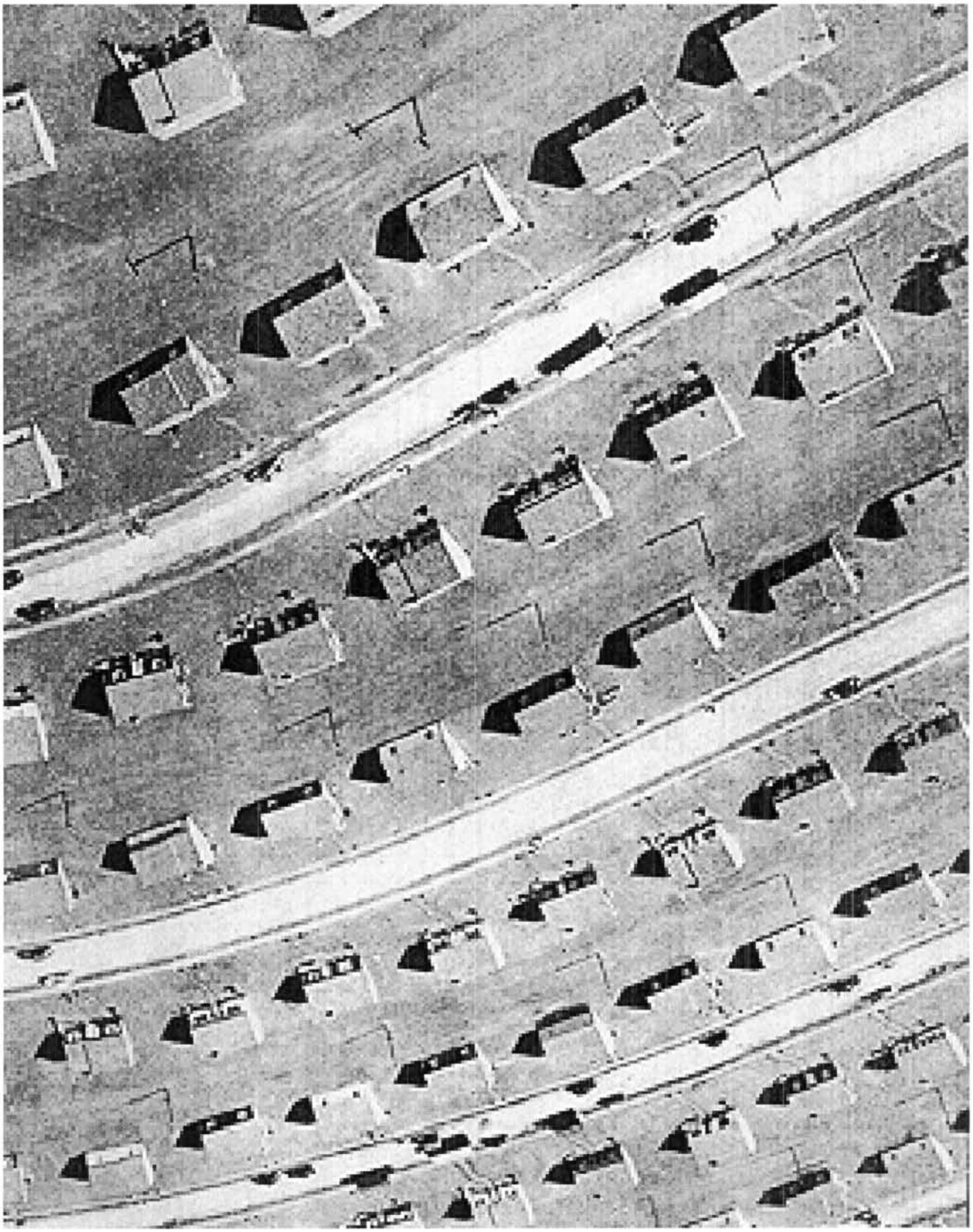
In each case the density of units is 7 per acre, meaning a total of 4,396 units for the standard scenario and 3,976 for the lake amenity. Each housing lot in the standard subdivision development costs the developer $800 per front foot to develop and sells for $1150, resulting in a revenue of $350 per front foot. In the lake amenity subdivision, each lot costs the developer $900 per front foot due to the cost of constructing and maintaining the lake, and to cover a general increase in the quality of other amenities that accompany it, such as landscaping and construction detailing. The lot sells for a higher amount, $1,380, due to the inclusion of a private lake. Thus the revenue of the lake amenity house, $480 per foot, is significantly greater. This translates to an $11,107,020 increase in revenue over the standard, no amenity subdivision, despite the fewer number of saleable units overall. In this way, the cost of the lake is exceeded by the benefit it offers in terms of a direct increase in revenue generated from the remaining houses. The lake becomes part of a commodification hierarchy and, just like the trees in the second growth forest and the houses it is used to sell in the subdivision, it becomes a saleable representation of a part removed from a greater natural whole.

The no amenity subdivisions, at 11 million dollars less profit, still prove to be a successful economic venture for the developer because they provide a product for the market of first-time home buyers who can't afford the higher priced homes of the lake suburb. The balance of how many low-end versus high-end suburbs to build are determined by yet another economic equation. On a scale of increasing "consumability," the house in the no amenity suburb can be considered the most consumable, as its buyers typically purchase it with the intention of selling it for its resale value within 1 to 2 years.[41] The house's eventual resale value is the focal point of the decision to purchase: "today, for those who can afford to own it, housing is often another commodity to be treated in much the same way as, say, a stock portfolio."[42] In this way, the

development of the human environment is approached in the same calculated, abstracted manner that we approach the managing of the natural environment. The motive is strictly economic: less money in and more money out. The new suburban home for first time home buyers is purchased with the expectation of being owned for less time than the average new car.[43] It becomes a house that is experienced and used up with only little or no thought; "like the styrofoam cup filled with instant coffee they have no past and no potential future. Every house comes to be like every other house as people move every five years and purchase on the basis of inevitable resale...although not literally discarded they are as thoughtlessly used up by one person after another."[44]

The premise and the ultimate goal of the second growth forest and the suburban development are essentially the same, and both are born of a way of looking at the world that allows for an abstraction of whole systems into tiny unrelated parts, each presumed to be understood and thus controllable. From within this economic framework, long-term costs are ignored along with the benefit of what might be viewed as the unquantifiable depth of experiences or strength of connections. What is ignored is the "'quality without a name' which cannot be talked about, but can always be recognized by those who visit a place that has it."[45] The strength of these economic equations is that such a quality cannot be defined in the same language. They rely on the fact that "nothing can be proven – only disproven; nothing can be known - only unknown. Thus, we can never 'know' anything in terms of knowledge but only in terms of intuition – the knowing *beyond* knowledge, which is not admissible as scientific evidence."[46] The economist's way to deal with the elusive quality of Y is to represent it, as in the case of the forestry equation, as a mathematical unknown. Y then becomes tangible; it becomes definable and is transformed into the provable realm of

economics. It can be assigned a value of 0 and then be removed from the equation, leaving us with forests and housing developments without any trace of the intangible, experiential, *quality without a name*.



Monoculture and Placelessness

The suburban environment, from the perspective of human commodification, is clearly in the same realm as the second growth forest. It is a product to be managed, "nature and community packaged and sold."[47] The greater issue, however, is that it has become the *experiential* equivalent of a second growth forest – something vital is missing. The second growth forest lacks the diversity, the density of growth, the complexity of relationships, the *richness* of a virgin forest. As forestry critic Chris Maser states, "we are liquidating our forests and replacing them with short-rotation plantations. Everything nature does in designing forests adds to *diversity, complexity*, and *stability* through time. We decrease this by redesigning forests into plantations."[48] The difference between the old growth forest and the plantation is a loss of "diversity, complexity and stability," and the loss is perceptible. A whole dimension is missing because the second growth forest is simply a series of independent trees rather than an interconnected whole. It is like the shadow of a natural forest ecosystem, a representation of a forest with its inner depth removed.

The suburban environment is missing the same essential things. It is missing the "vital, not quite disciplined formal and social mix that gives cities life."[49] It is perceptibly missing the *richness* of a dynamic city or mixed use community. It lacks a diversity of building types, inhabitants and architecture. Its uniformity of building types denies complexity through its inability to integrate the elements of a greater human existence like work, shopping, gathering and leisure. Its physical design disregards another layer of complexity through the lack of relationships between built forms, between built forms and landscape, built forms and the people who use them and, perhaps worst of all, between people themselves. Its lack of relationships at all levels makes it a non-place environment, simply an "approximation of a neighbourhood or town."[50] The result of limited diversity and complexity tends to be a loss of stability through time – a measure of the strength of a natural or built environment.

Healthy towns and cities, built over time and influenced by changing human conditions, exhibit a richness that relates directly to a diversity of built forms and their ability to meet the needs of a diverse mix of society. Restricting suburban developments to one building type - detached, single family houses – and limiting the architectural expression of the house to one or two forms, results in a social and visual monotony. With no housing designed to accommodate single people, people of differing incomes, the car-less, the elderly, the renter or the poor, the already limited diversity of an environment offering only housing is reduced still further. For the last 25 years, over one million housing units have been built per year in the U.S., and in 1990, 75% of those were single family housing.[51] The suburban environment becomes one of "likeminded people of the same economic class...[who] reside together in similar houses and commute to work in similar cars to similar offices..."[52]

Suburbia's lack of diversity of building types leads to a loss of complexity. The complexity of a system is defined by the relationships of its parts,[53] and in its restriction to housing the suburban development separates the house from its relationship to all other parts of what can be considered the whole of human life. Suburbia geographically separates housing from the greater continuum of human life by fragmenting it into remote, predictable components of *work – shopping – home – leisure*. The greater whole of human existence is lost through this fragmentation, as relationships essential to creating the healthy complexity of human life are eliminated. Removed are the haphazard interactions and the overflow of different aspects of life that occur in a diverse living environment - the casual meeting on the street on the way to or from work, dining or the shops. Through a lack of relationships, the sameness and predictability of suburbia limits the possibility of the unexpected. Its loss is significant, though hard to measure, and its value, as Rowe de-

scribes, may be a spiritual one: "It is precisely this predictability and control, quite apart from the monotony it may produce, that precludes the unexpected... confrontation from everyday existence. Further...it is precisely these moments of being pulled up short that cause us to reflect upon ourselves – our lives and our values – and thus increase not only our tolerance for but our understanding of the world."[54]

A community in which people live, as well as work, means an environment where people shop, eat, recreate and spend leisure time, an environment that is *inhabited*. The inter-relatedness of all aspects of life are realized in the same way in which they are realized in a healthy natural environment. As a result of this cohesiveness, a diversity of lifestyles are supported, which reflects a variety of built forms and building types to provide a diversity of habitats within the environment. By separating the components of daily life the greater whole that the built environment either once contained or has the potential of containing, is lost. What is left of diverse urban fabric is similar to the patches of left over nature; both now surrounded by vast tracts of suburban housing. Without connection to a larger realm of human existence, the individual houses of suburbia become "isolated objects without civic connection or context."[55]

New Urbanism, in its attempt to address some of these issues, falls into a similar category as shallow environmentalism. Its alternative subdivision developments treat the conditions of isolation, homogeneity and lack of community at a superficial level only. By attempting to create an architecture of instant community, it takes for granted that relationships that take years, even generations, to develop will be in place on opening day. Its use of historical facades invokes nostalgia but fails to deliver a real experience – it is a replica of community and a reproduction of history removed from any context. It is missing the historical

sedimentation of the long established community it mimics, and the missing piece leaves it with a hollowness almost more tangible than that of its typical suburban counterpart.

Kunstler, referring to the American Dream marketing of the archetypal "English manor house in the park" and "the lone settlement in the wilderness," argues that the lack of relationships between typical suburban houses is desired: "Each house was intended to stand in splendid isolation, without relation to the others...it fails by deliberate design because the individual houses are not *supposed* to be part of a whole..."[56] The economically induced uniformity of suburban developments remains virtually inflexible across the entire geography of North America, removing any uniqueness that might effectively place the development within its region. With no local references in built form, each suburb in its entirety could exist anywhere, and with no variation in building type, any street could be anywhere within the development. The incoherent homogeneity that results leads to an overall feeling of placelessness that affects its inhabitants and its visitors both visually and spiritually.

The architectural monotony of nearly identical houses creates a visual sameness that prevents the important human attachment of significance to any one place. Barbara Feldman states in "Settlement-Identity: Psychological Bonds with Home Places in a Mobile Society", that the "commercialization and standardization in design and building practices [are] deemed causes of the destruction of the uniqueness of residential communities – every place comes to look and feel the same as the next."[57] Each house in the development looks like one next to it, making each street look and feel the same as the one beside and the one five streets over. As Kunstler asserts, "suburbia fails us in a large part because it is so abstract. It's an idea of place rather than a place. The way you can tell is because so many places in this country [the United States] seem

like no place in particular."[58] The repetition of built form affects the stability of suburbia as a home environment by preventing the development of any significant feeling of identification with it as a place. Such identification has been expressed by Barbara Feldman as the establishment of psychological bonds with tangible home surroundings. Evidence of these bonds with place are expressed through an individual's "constancy of residence in one place, a commitment to maintain future residence in this place, a belief in the distinctiveness of home place," and an individual's "sense of responsibility and commitment to continue to attend to and tend for this place."[59] A lack of willingness or ability of people in America to develop a tie with their home places has led to concern among researchers, who believe that the home environs are a primary factor in the positive development and expression of self-identity: "...through habitual, focused, and satisfying involvement in a residential locale, the tangible home setting becomes an enduring symbol of self, of the continuity of one's experiences, and of what is significant and valued by the inhabitant."[60]

The spiritual or psychological connectedness that people typically feel with their home, termed rootedness or *spatial identity*, has been expressed as the experience of "a deeply felt relatedness with their home environs,"[61] a feeling that relates to both the dwelling unit and the local living environs. The built environment of suburbia, where every place comes to look and feel like the next, prevents the establishment of these important bonds. That the home has lost the ability to evoke such a strong bond with individuals in America may be a direct result of the inability of subdivision housing (which provides a home environment for 75% of North Americans)[62] to provide a built environment with which individuals are capable of bonding, as reflected in the typically rapid re-sale of suburban homes. As discussed above, it is understood that the average first time suburban home buyer in Calgary intends to move within one or two years, and more than 20% of Americans change residence each year, the highest rate among Western industrial nations.[63]

While this mobility is partially attributable to job-related geographical relocations, Feldman argues that this mobility reflects the public's inability to develop ties with their home places, caused in a large part by the placeless character of the American suburban landscape.

Suburbia, by its very design, lacks a diversity of building types, architectural expression and inhabitants, which limits its complexity as a human habitat. Its lack of diversity and complexity prevent its achievement of a tangible sense of place, which denies the establishment of human psychological bonds necessary for its function as a stable, *healthy* human environment. Kunstler loosely defines community as a place people consider worth caring about.[64] People care about it partially through its ability to fulfill their needs, which it achieves architecturally through a combination of public gathering places, stores, offices, workshops, and variety of residences. The resulting diversity of built form encourages human identification with specific buildings, which helps to achieve the realization of place. For example, the *place* where the Italian restaurant is might be identified by its relationship to existing built forms - across the street from the church on the corner and the beside the video store. Building on a necessary foundation of diversity, it is the complexity of relationships between different built forms that contributes to the richness or "quality without a name" of areas we might consider experientially rich communities. This includes their horizontal and vertical relationships, their architectural relationship to the history of the area and to contemporary needs, their relationship of uses, and the relationships they establish between public and private realms.

Nature, according to Kunstler, "appears to consist of things, of stuff we call matter, but more correctly may be said to consist of patterns of energy ...upward from there [nature] elaborates itself into evermore complex intersections, or relationships of relationships."[65] The relationships between contributing components

are what create, define, and embody the intangible richness of the whole of nature. The built environment is a part of this whole, and the same principles exist for all things in the built form of the human environment. As Kunstler states, "what we perceive to be *things* in our everyday surroundings - buildings, walls, streets, fences - are more properly understood as patterns intersecting with patterns, relationships between other relationships."[66] A built environment that fulfills a diversity of needs for a diversity of people results in a greater complexity of human and built relationships. Both the diversity and complexity of an environment contribute to its overall strength through the realization of it as part of a whole inter-related system. It is the inter-relatedness of the system that defines its long-term stability. By stripping away all levels of relationships in suburbia we have built a habitat for ourselves that is a second growth forest when we have within our power the ability to create a built environment rich with the relationships of an old growth forest.

Ecocentrism and Architecture

"If men can live comfortably in their surroundings...if they can learn to feel themselves a part of the things around them, then perhaps life on earth becomes imbued with a feeling of holiness."[67]

As the comparison between second growth forests and the North American suburban environment illustrates, we conceive of and construct our built environment in the same abstracted manner with which we manage the natural environment and, as a result, it suffers the same degradation. Our abstraction and alienation from both originates from a limited, resource driven understanding of the world. To move from this strictly utilitarian view of the world to an ecocentric worldview is a step towards addressing the basis of our society's rapidly dissolving relationship with the world around us. The theory that this paper proposes, and attempts to realize in the architectural design component, is that the achievement of the deeper, ecocentric relationship with nature that deep ecology suggests, relies on the achievement of a deeper relationship with our own built environment. Humans make a physical habitat for themselves that exists within the greater context of the natural environment, and to achieve a greater connection to the natural environment we must resolve to achieve a deeper connection with our immediate built surroundings. A personal identification with the architecture around us might bring about a clearer understanding of the relationships that exist between all things, and begin to reinforce the realization of our own relationship to the larger natural world. It is then that we can reconsider the anthropocentric view of the world as being "divided up into independently existing subjects and objects,"[68] and begin to consider the world from the deep ecological perspective, that "there [is no] bifurcation in reality between the human and the nonhuman realms."[69]

The shift in worldview that deep ecology suggests must begin from within the realm of the built environment, and be applied to both through the recognition that our environment exists as part of the greater natural continuum. A holistic view of the built environment as one valuable ecosystem that exists within the larger context of the natural world is necessary to heal them both, and to begin to reconsider the relationship between ourselves and our built environment is an essential step towards addressing the damage that both

contexts suffer. With such a primal shift in worldview comes a new context for addressing environmental issues through the practice of architecture. By prompting an embodied sense of identification, architecture can bring about a re-engagement with the world, a return to the view of the world as something to partake in rather than to consume. Through the adoption of a deep ecology model, environmentalism becomes active in the conceptual design of architecture rather than simply through its final means of construction. As a subsuming theory, *deep* architecture, like deep ecology, seeks to address the root causes of the environmental crisis rather than merely its symptoms. To begin to do this it is necessary to recognize that "all entities are constituted by their relationships," a point that is key to the philosophy of deep ecology.[70] In this sense, the focus of architecture must shift from the object itself to the relationships and events that surround its use. In this case, "the significance of the architectural object resides not in the surface qualities of its physicality but in the processes and relationships that it manifests and mediates between."[71]

The basic architecture of the human environment is the private dwelling, and, as this paper asserts, it is the architectural form that has suffered most as a result of the commodification inherent in the anthropocentric view. At the same time, it is the architectural form with which the highest level of human psychological and physical connection is developed. As the private realm of the individual, the architecture of home provides the space in which the most elemental of human activities are enacted. Activities like dining, sleeping and bathing, despite vast advances in technology, continue to maintain a basic connection with a larger experiential and historical sphere of human experience. These basic human rituals have a simplicity, sensuality and timelessness that gives them an experiential significance, and provide them with the means to offer us a daily means of tangible engagement with the world.

The architecture of the private dwelling, through its enactment of these activities, is an opportunity to return to the understanding of home as the "focal point of one's experiential space,"[72] rather than as simply an architectural shell that denies active personal engagement. Feldman suggests that the human connection to home can be realized through "the purposeful and satisfying concentration of the multiple routines of everyday life...[by which] the residential environ is distinguished from its surroundings and imbued with positive affect."[73] Such connections, if made at a deeper level, may be considered the conscious enactment of the rituals that order our lives. "In the pursuit of an architecture of depth it is to the focal potential of the simple repetitive tasks of daily living that we turn."[74] Tasks that can play a ritualistic or focal role are as varied as dining, gardening, and reading. All, when elevated to a focal level, involve direct and thoughtful personal engagement, and through this engagement encourage our identification with ourselves and with the world around us. The creation of private dwelling spaces that encourage such engagement to take place is the means of achieving "a more intimate tie between person and home place – ideas, feelings, and behavioural dispositions that relate the identity of a person to a place,"[75] and may be the means of removing the architecture of home from the realm of the pure commodity.

Architecture of depth resists commodification through its ability to initiate an embodied sense of identification, and its capacity to encourage the enactment of human focal experiences. The same principles hold true beyond the private dwelling, where architecture of depth must partake in its surroundings and mediate with the existing built form to create a public realm that allows for another form of human engagement. Through the development of "relationships of relationships"[76] architecture of the public realm will achieve a richness of space, space "left for wonder."[77] If achieved, such architecture may prompt a change in the way we engage with the built environment, and work towards a change in our relationship to ourselves and

the world around us. In this sense, deep architecture participates in the environmental movement by activating the move towards a deep ecological view of the world that acknowledges and celebrates the essential inter-relatedness of all things.

part two: the design - making of place

Making of Place

"If we think of boundaries in experiential rather than visual terms – or even rather than in the legal terms of property – territoriality comes to mean something quite different too. Current biological theory suggests that animals sense themselves to be truly part of the larger world; their selves extend beyond their skins to encompass an invisible region that includes the whole integrated web of relationships they're part of."[78]

Introduction

In addressing the environmental crisis, deep ecology attempts to go beyond the symptoms to begin to provide real, long-term solutions by attacking the crisis at its roots – our society's relationship to nature. If we are able to achieve a radical shift in our relationship with nature, deep ecologists believe the symptoms of the crisis will be dealt with in turn. Deep architecture must attempt the same thing. The architectural design component of this MDP is designed in the understanding that the environmental impacts of the project (the symptoms) will be minimized using already existing technologies for construction and wise material usage along with advances in passive heating and cooling methods. The focus of the design then becomes how to use the architecture itself to address the crisis of the built environment at its source – our own relationship with it. The establishment of a more meaningful relationship with space and the world around us that deep ecology suggests then becomes the focal point of how the architectural investigation begins to address the issues discussed in the theory section.

Following the critique of suburbia presented in part one, the site and program selected are intended to provide both a solution and an alternative to the somewhat limited housing options available. While deep ecology proposes a radical shift in society's current mode of thinking and the lifestyle choices that fall directly from it, the means of achieving this will necessarily be gradual. The first step is to recognize that the seemingly endless sprawl of suburbia must come to an end, and the next is to consider alternate means of providing housing for the diversity of people who require it. Rather than continue to consume vast tracts of wilderness to create the type of home environment that suburbia provides, this MDP proposes a return to the already existing built fabric of the city to determine appropriate existing sites for housing. At the same time,

in the acknowledgement that societal change will come gradually, the project also seeks to accommodate in part society's current basic standard housing requirements for families, who continue to be the primary purchasers of detached suburban houses.

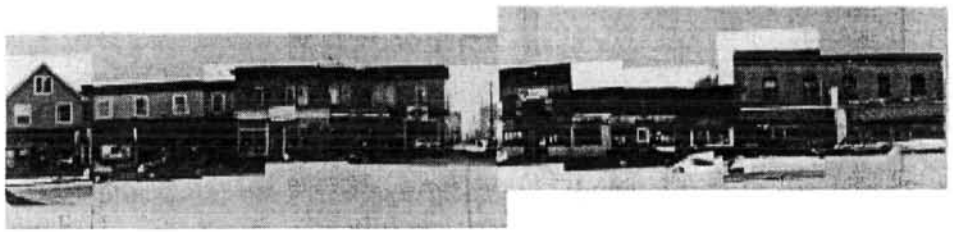
Site and Context

Topocosm: *a Greek term derived from topo for place and cosmos for world order. "Topocosm means 'the world order of a particular place.' The topocosm is the entire complex of any given locality conceived of as a living organism...The topocosm is not only the actual and present living community, but also that continuous entity of which the present community is but the current manifestation."*[79]

The site chosen for this project is located on the northeast corner of 11th Street and 15th Avenue SW in Calgary's Connaught district. Currently occupied by a recent condominium development, the site was once home to a three story, red brick residential building constructed in 1910, along with five single family homes. The neighbourhood surrounding the site is a lively urban pocket that contains an eclectic block of retail spaces along 11th Street, including coffee shops, clothing stores, a flower shop, a diner/cafe, a corner grocery store and a small community development centre. Directly across from the site on the east side of 11th Street is a popular bakery and cafe with outdoor seating. On the southeast corner of the site is a public park with a childrens play area, and adjacent to this, on the southwest corner, is a lawn bowling green and clubhouse. Within easy walking distance are an elementary, a junior and a large secondary school, Calgary's downtown commercial and business district, and 17th Avenue, one of Calgary's most active pedestrian streets.

The majority of the buildings along the retail block of 11th Street date back to the early 1900's and have seen a variety of uses. What was once a family home is now a family grocery, turning the corner of 11th Street onto 15th Avenue and addressing both from its corner vantagepoint. Layers of paint are visible on storefronts along the block, reflecting shifts in use and owners over time. The pavement in front of the store entries, which have zero frontage and literally spill onto the sidewalk, are softened from years of feet passing over them. The retail strip has a tangible sense of history, of change over time and of inevitable change to come in the future – it embodies a sense of time as a continuum. The relationships established in this small two-block zone are as dense as those in an old growth forest, and they act to make this area a

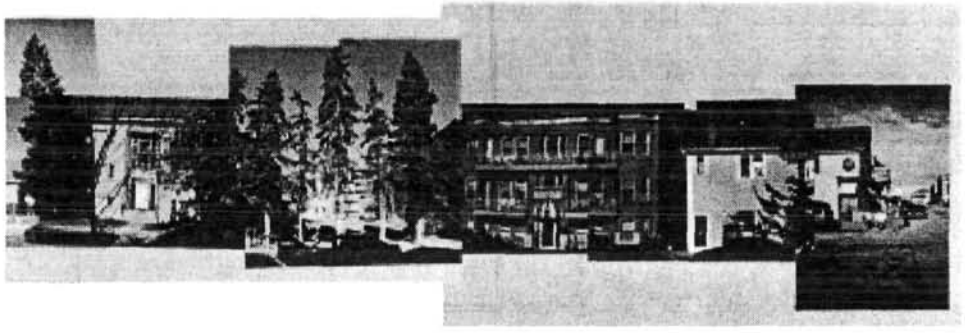
distinct pedestrian destination point. The physical layering of paint, concrete and woodwork provide evidence of what was once there and at the same time suggest a shifting and layering of uses and spaces that are a testament to the cultural sedimentation that has taken place in the neighbourhood. Each retail use is uniquely different from the others, yet the whole of the block possesses an overall connectivity as a result of the relationship of one shop to the next.



11th Street: retail zone between 15th and 16th Avenues.

The cross streets of 15th and 16th Avenue are a mixture of original 1910 and older houses, some converted to apartment units, interspersed between modern high-rises, three and four story 1930-1960 apartment buildings and newer condominium developments. Together they provide a mixture of rental and owned living spaces. Directly across from the site along 15th Avenue is a three story red brick apartment building constructed in 1912, built with zero frontage like the retail units from the same era along 11th Street. The result of its proximity to the sidewalk is to engage it more directly with the public realm of the street it fronts,

and this, along with its human scale, strengthen its relationship to the street and to the immediate neighbourhood.



15th Avenue: directly across from the site at 11th Street.

The site and its surrounding neighbourhood are distinguished from much of the city fabric around them through the existence of strong built and experiential relationships. Individual buildings have a relationship with each other (through diverse yet related uses and a similarity of scale), with the street (through a narrow, pedestrian-oriented scale and stores located close to the sidewalk) and with pedestrians (through the establishment of a clear public realm and buildings at an appropriate human scale). Together they create what undeniably feels like a good place to be. The combination of relationships of scale, diversity and a casual acceptance of history work together to make the area one that encourages a type of personal engagement. Store contents shift from the inside at night out onto the sidewalk in the morning: a refurbished table to touch,

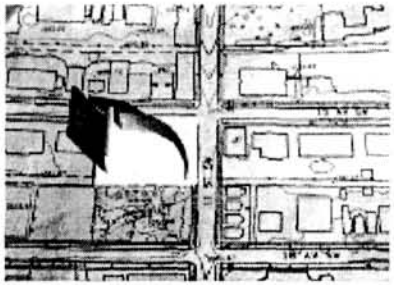
fragrant plants or a diner breakfast to smell, tables at which to sip coffee and read the paper. The area has a strong experiential quality – it is a rare and valuable piece of urban fabric that a new architectural intervention must thoughtfully acknowledge and strive to enrich.

The architectural design proposed for the site, aims to build upon the diversity, scale, and uses of the existing neighbourhood into which it is being introduced, and, as much as possible, to invite the experiential qualities of the area into the site of the new project. The final design consists of a variety of residential dwellings – five single-family attached houses, three live/work units and seven smaller one and two story apartments – as well as three leasable retail units, all of which enclose a shared outdoor garden space. The overall massing and the arrangement of retail and living units are designed to relate to and compliment the massing of adjacent buildings, and to draw upon the usage and activity of the neighbourhood that surrounds it. The design of the individual units focuses on the engagement of the dweller with the architecture of their private space, and to the larger whole of the residential complex through a relationship with the shared garden.

The design of a mixed-use housing project for this site is used to explore architecturally the theories developed in the paper. The design attempts to address the question of how architecture can begin to bring about a shift in the way we relate to the world around us, beginning with our relationship with built form and extending through to our relationship with nature. It endeavours to modify the way we think about living to suggest that our mode of shelter can exceed its role as a boundary between ourselves and the environment, and begin to act as the means for a greater engagement with the environment beyond its walls. The design strives to create the sense of place that is missing in suburban housing developments by enriching

existing site relationships and developing new ones with the neighbourhood of which it is a part. The design was thus considered from the perspective of its role in beginning the process of rethinking the boundary between ourselves and built form, and eventually between ourselves and nature.

Design Process

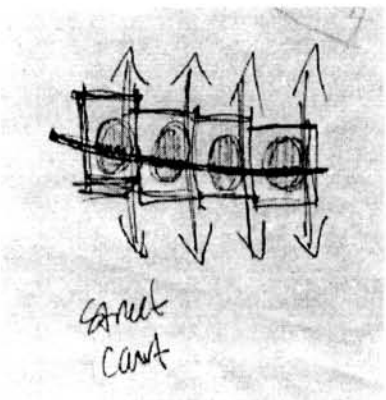


parti model

The parti model for the design was developed as a formal response to the existing neighbourhood and the influences it brings to the site. The parti begins to suggest a form for the new architectural design, based on the surrounding urban fabric and the relationships the project aims to establish as a new element within it. The model articulates a desire to gather into the site the positive nature of the neighbourhood that surrounds it, and also suggests a radiating outward of elements of the new project into the neighbourhood. The curving gesture gently turns the corner of 11th Street and 15th Avenue; enclosing within it a private garden space, and creating on its outer edge a new public realm. The public realm created on the corner establishes a relationship between the existing public area of retail shops and eateries on 11th Street, and the corner grocery store directly opposite. The height of the curve changes as it turns the corner from 15th Avenue onto 11th Street, indicating that the new intervention will maintain the three and four story high scale established by the apartments directly across from the site on 15th, as well as the two story high scale established by the existing retail block along 11th Street.

The parti is anchored by a second form, a tall rectilinear piece that contrasts the lightness of the curving gesture and distinguishes the western edge of the site from the side lane and the adjacent high-rise building. This block creates an axis parallel to 11th Street, creating an edge to the interior garden space and a

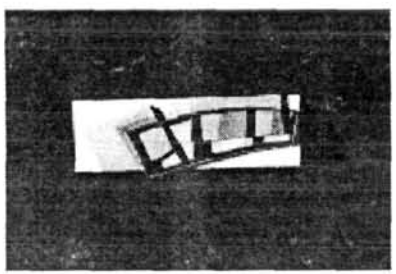
boundary to the exterior that separates the site from the automobile zone of the lane. The block establishes a relationship with the existing lane by maintaining it as a means of vehicular access to the apartment building next door and using it to provide access to underground parking for the new project. The interior open space enclosed by the curve and the taller block of the parti is unbounded on the southern edge, and opens into the park that exists across the lane along the southern edge of the site. This lane is used less frequently by vehicles than the west lane, and is occasionally used by pedestrians to access the park and the nearby bowling green. The existence of the lane and the establishment of a row of trees on the site act to partially separate the new garden space from the park, while allowing a visual and a physical connection to exist between the two. The shared garden space exists as a smaller open space within the larger context of the park space beyond, and within it is contained a combination of hard surface along the more public edge of 11th Street, and a shared green space distinct from smaller private garden areas along the perimeter.



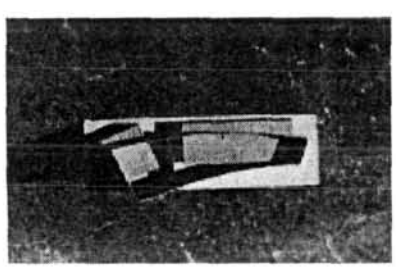
concept sketch

The parti was generated primarily through the desire to establish specific physical relationships between the new design and the existing neighbourhood. The next layer of the design process became an examination of the program for the new project, and how programmatic uses could act to establish new, and enrich existing, relationships of use in the area. The curve of the parti, a key defining element to the new form, began to establish a distinction between public and private spaces. As such, the curve began to inform decisions with regard to programmatic uses and the architectural forms that would be used to express them. The 11th Street edge, as described above, provides a strong pedestrian and public edge to the site, while 15th Avenue offers a quieter, more residential edge. The curve, by softening and blurring the corner condition between these two realms, begins to mediate between them by inviting the public realm of 11th Street

onto 15th Avenue. The new curved corner condition also provides an opportunity for access to the site that opens the project to the existing neighbourhood, inviting a view and perhaps a stroll into the new garden space enclosed within.



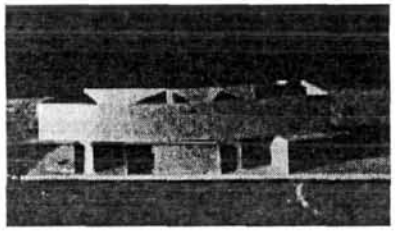
process models



Both the initial gestures of the parti, the curve and the block, begin to establish architectural boundaries. In association with the notions of boundary discussed in the paper – those between humans and built form, built form and nature and ultimately between humans and nature – and the deep ecological desire to dissolve these boundaries, it became essential to begin to consider the gestures (and the architectural forms they would become) from within this context. The architectural realization of the parti gestures endeavours to take them beyond their role as a simple boundary between the realms of 11th Street and 15th Avenue and the space of the new project, and to use them to facilitate a type of active engagement between the realms they physically separate. Every aspect of transforming the parti into a developed design was then considered from the perspective of how the new architectural form, as a type of physical boundary, could mediate and facilitate an engagement between the interior of the new garden space and the conditions that exist beyond its walls.

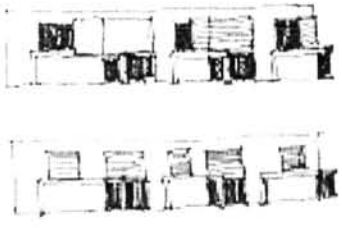
To begin, the private dwelling spaces are placed within the mediatory realm of the curve, behind its public face that fronts the street and within the private realm of its interior garden face. The boundary of the initial curved gesture is manipulated in order to accommodate the private dwellings and the different programmatic elements of the new project. It is stretched to allow private dwellings spaces to exist within it, held between the public realms of 15th Avenue and 11th Street and the shared realm of the interior garden. It is penetrated to allow ground level retail units along 11th Street that extend the vibrant public zone of the

adjacent block into the realm of the new project, complementing the facility on the facing block. It is broken at the corner to provide access to the private residences and the garden space within. It is punctured from one side to the other along the 15th Avenue facade to accommodate live/work studios that blur the public and private boundary it has established. The studios unite a commercial element with a public display window along 15th Avenue, with a private live and a semi-private below grade work space that extends into the interior garden. The live/work units reinforce the intent of the initial curving gesture to blur the distinction between the public nature of 11th Street and the residential nature of 15th Avenue. Their proximity to the retail zone of 11th Street, combined with the new corner condition, allow their display windows to take advantage of the already established pedestrian activity.



process model

The curve, manipulated and punctured to contain and receive programmatic elements, is next shifted and layered. Where the curve is punctured by the box-like form of the retail and the live/work units, the curved element within the box (now separated from the larger curved boundary) becomes a retail display area behind a glazed wall. The retail box spaces are then shifted over to create a void in the boundary that becomes a second street-front window display, enhancing the retail relationship to the busy pedestrian street. The live/work boxes shift over to create a similar void that becomes a walkway into the garden that meets the existing sidewalk. The walkways provide a glimpse of the garden within to pedestrians on the street as well as providing access to the live/work studios and the garden entry to the apartments above. The curved display wall within the retail and live/work spaces is then shifted; creating a void that provides access to the display area. In the two story live/work units the display wall is also shifted down into the lower level to allow light to penetrate over the top into the private live space it encloses.



sketch of window screens

The window openings in the apartments above the retail units on 11th Street are conceived of and articulated in relation to the display windows on the ground level. While the curve creates public window displays at ground level, it encloses private dwelling spaces behind it on the floor above, juxtaposing the opposing conditions of public and private. The window openings to the apartments above, as voids, provide breaks in the privacy boundary, and begin to allow the private dwellings above to interact with the public realm of the street in a manner similar to the lower level retail and live/work units. The glazing above is aligned with the solid of the curved display walls below and has a sliding privacy screen that relates to the form of the display walls. The stationary display windows below appear to have shifted to one side within the box forms of the retail and live/work spaces, while the screens above are free to be shifted from one side to the other to open or close the private dwelling spaces to the public realm of the street below.

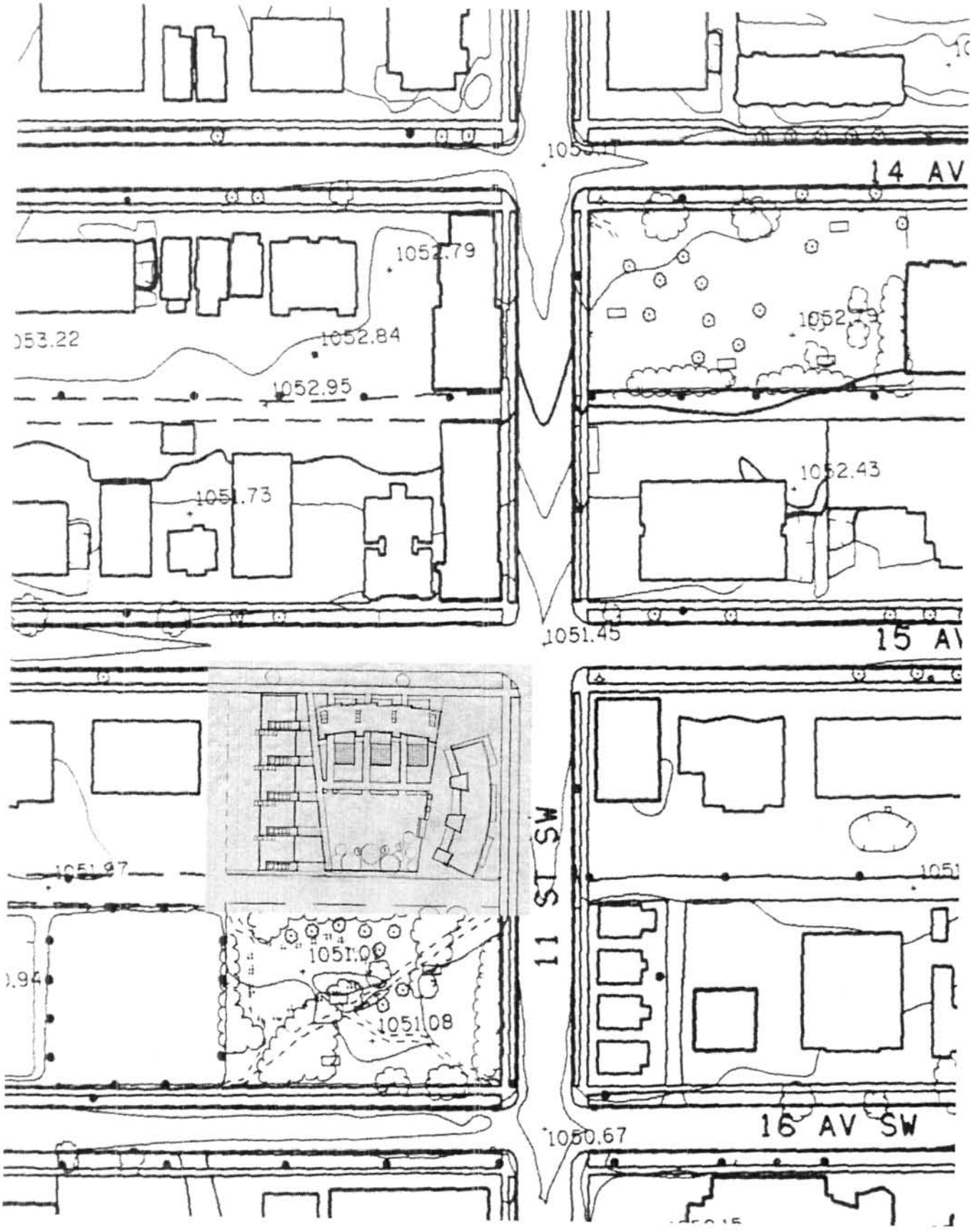
The curving element ends at the northwest corner of the site, where the initial rectilinear gesture, articulated as a row of five four storey family houses, begins. The separation between the curve and the family housing block provides another entry to the garden space and leads to the front doors of the family houses, each fronted by a small private garden space. The houses provide a solid edge to the site on the lane side and have private garages accessible from it. The lane also provides access to underground parking for the remaining units in the complex. The private garden spaces for each of the houses exists within the larger shared garden, except for the corner house, which exists in a slightly different condition from the rest. The corner house has a stronger relationship with 15th Avenue than the houses further in, and as such its front yard is more a part of the realm of 15th Avenue than of the inner garden. As a result, this house is turned to have its private garden space against the lane, complimenting the street-front gardens of the detached houses further along the block.

The articulation of the garden facades of the project are conceived of in a simpler manner than those on its more public front. Rather than establishing a sense of sliding and layering that is conveyed on the public side, the more private garden facades are about opening up directly into the common garden space. Balconies, decks and patios project out into the garden and work to interact and connect the inhabitants to the garden and to each other. Windows are without the screens on the street side, except for the louvres that cover the expanse of glass in the live/work units to protect them from the strong southern sun.

The final level of design addressed how the individual spaces would function, and how they can begin to blur the conceptual boundary between humans and nature through a blurring of the boundary that exists between ourselves and the spaces we inhabit. In order to consider what will enable people to truly inhabit these residences, it was necessary to begin to consider their relationships to each other, to their surroundings, to the sun and to the garden. There is an intentional level of overlap between the spaces to provide opportunity for a casual encounter between residents - doorways off of the shared garden space, a planter that extends from one unit but is accessible to another, private gardens delineated only by low fences and vegetation that allow them to blend into the larger shared garden. An attempt is made to strike a balance between the privacy of individual dwellings and a comfortable amount of public interaction. Wherever possible, rooms were designed to have light enter from two or three different directions, as the quality and amount of light entering undeniably alters the quality of a space and provides an increased awareness of the surrounding natural environment. At the same time, cross ventilation can be achieved, increasing the amount of outdoor air that flows through the space. Views from interior spaces are directed towards the common garden, which at its southern edge is dominated by tall deciduous trees. The trees act themselves as a type of permeable boundary, reinforcing the edge of the laneway containing the garden but still

allowing access and a visual connection to the park. That the trees are deciduous will also play a role in filtering the light from the south during the heat of summer and allowing for maximum penetration of lower light levels during the winter when the leaves have dropped. At a more detailed level, each unit attempts to provide space "left for wonder." A window seat at the end of the hall, a shared play space in front of the children's rooms, a vertical space enhanced by light filtering down through a skylight.

In the end the realized design attempts, through the establishment of the relationships described, to address the crisis of the built environment by strengthening our relationship to it – physically, psychologically and experientially. In so doing, it seeks to strengthen our relationship with the world around us, addressing architecturally what deep ecologists have identified as the root cause of the environmental crisis – our own relationship to the natural world. The theory component suggests that the continuation of suburban sprawl is neither good for the environment or for us, and the design exploration attempts to provide a meaningful alternative that also fulfills the deep ecological ideal of establishing a more meaningful relationship with space and the world around us.


14 AV
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16 AV SW
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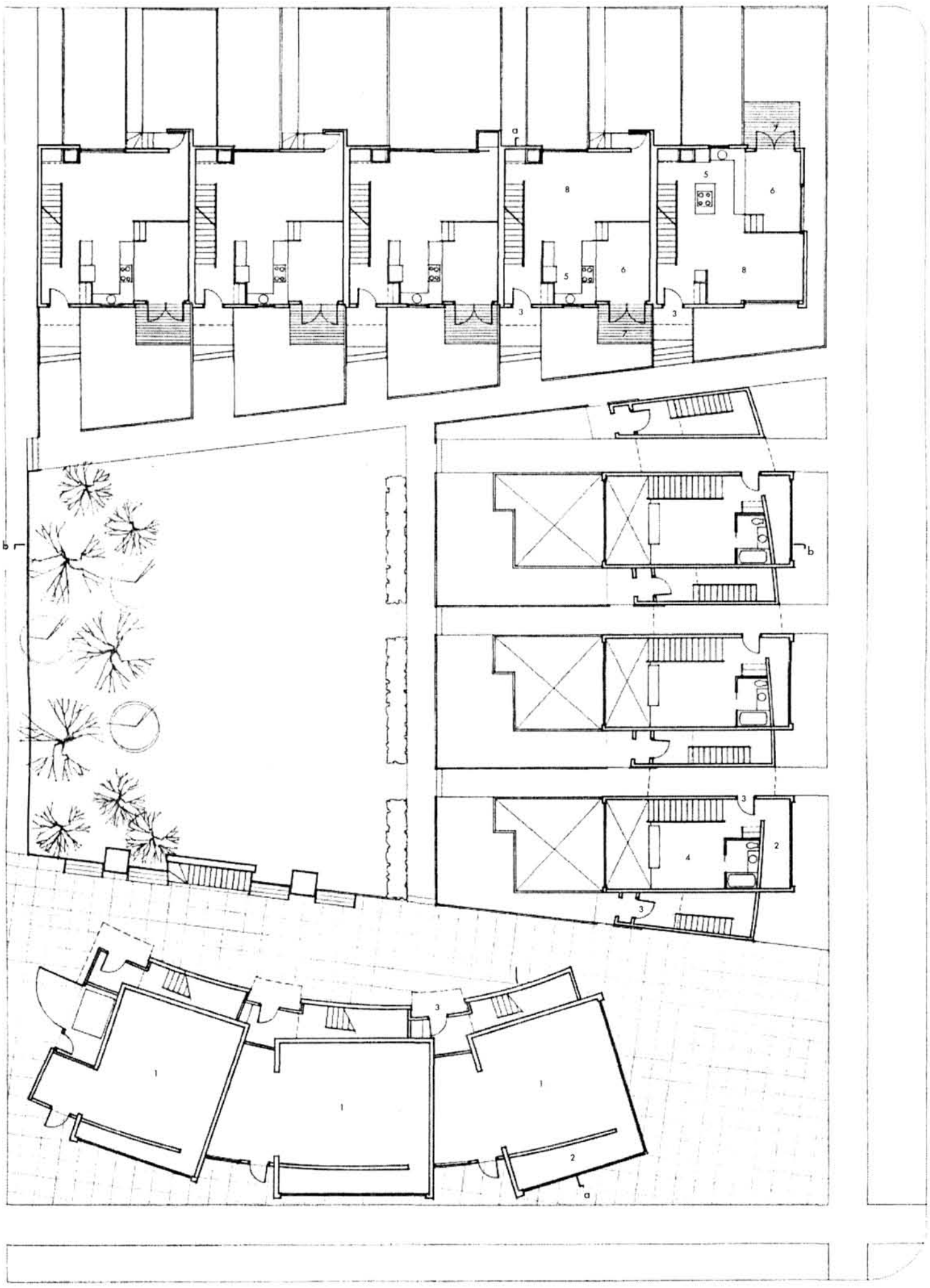
Drawings and Model

Site context 1:1250

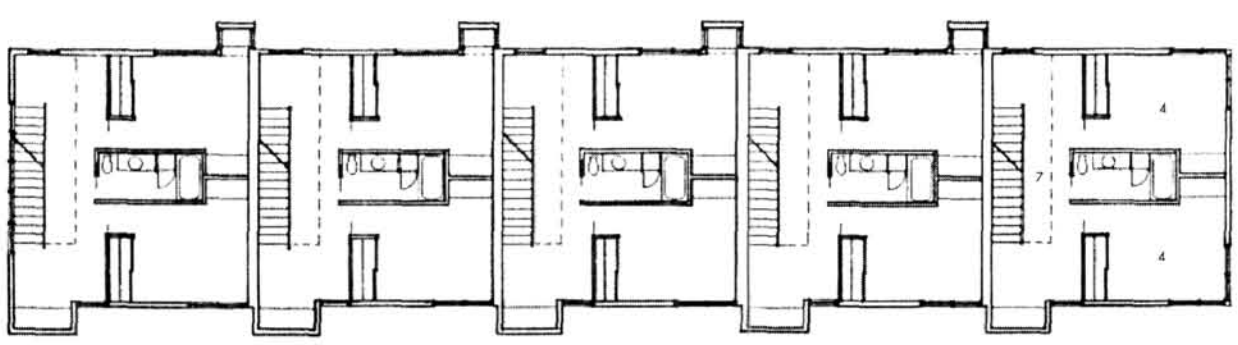
1. private entry
2. live/work
3. outdoor live/work
4. kitchen/dining
5. laundry/wash area
6. mechanical
7. storage
8. private garage

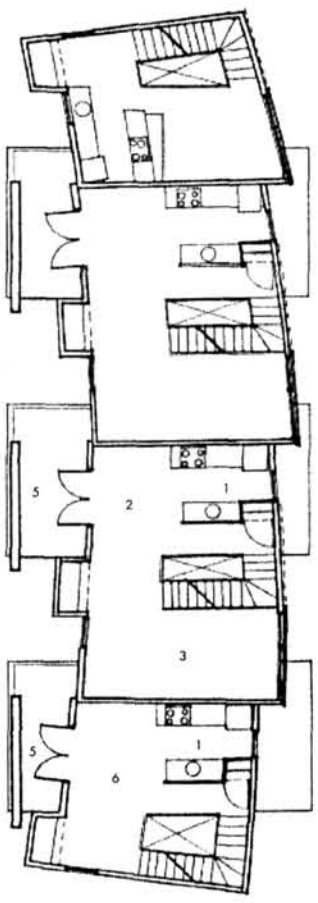
Patio/Garage Level

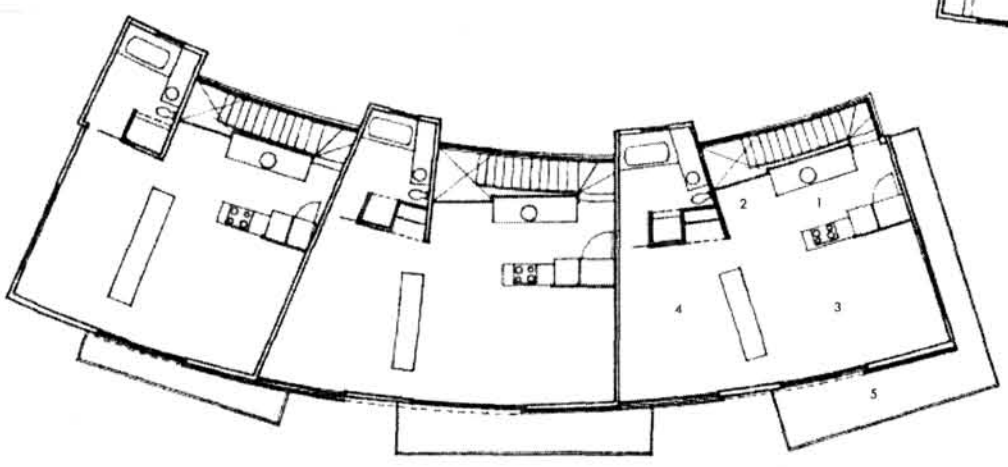


1. retail
2. display area
3. private entry
4. bedroom
5. kitchen
6. dining
7. deck
8. living

Ground Level

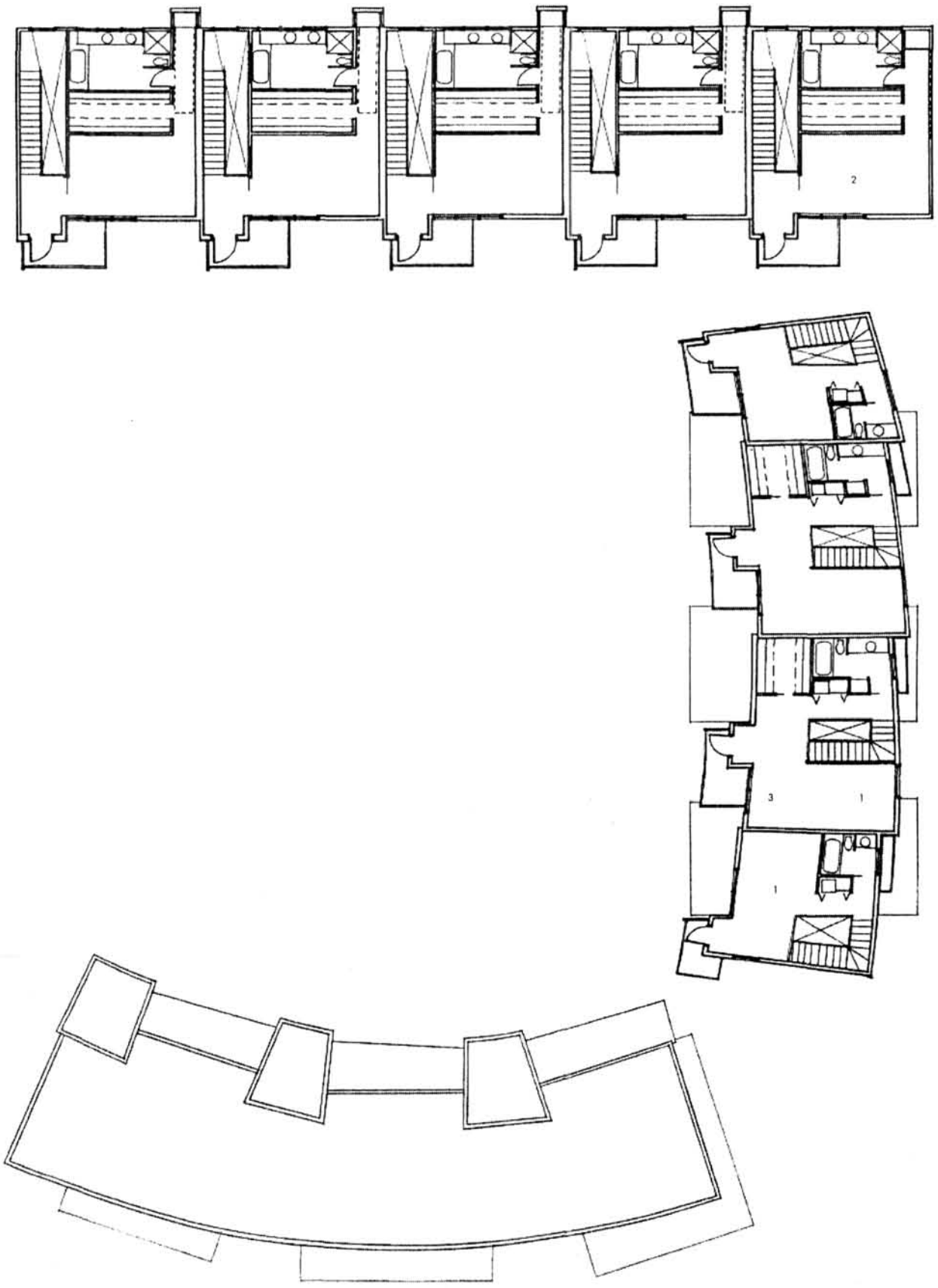






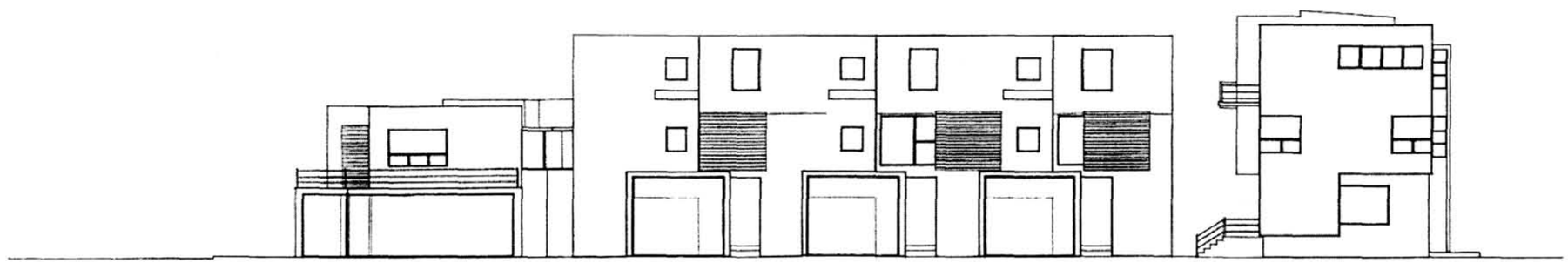
1. kitchen
2. dining
3. living
4. bedroom
5. deck
6. living/dining
7. children's play

Second Level

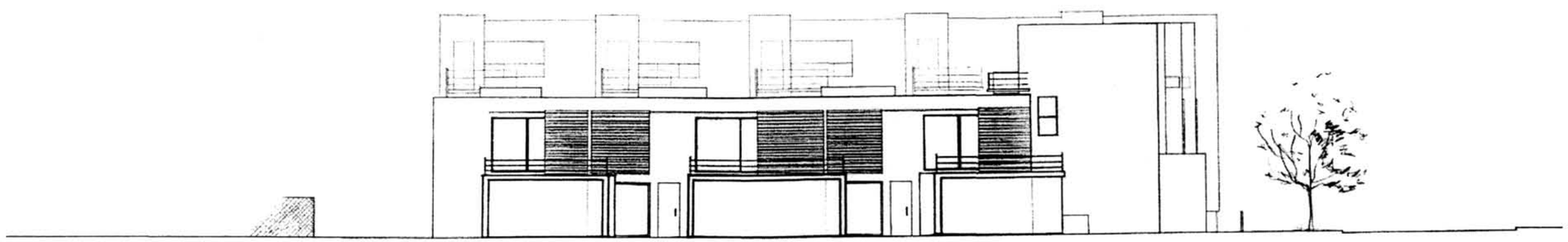


1. bedroom
2. master bedroom
3. sitting

Third Level

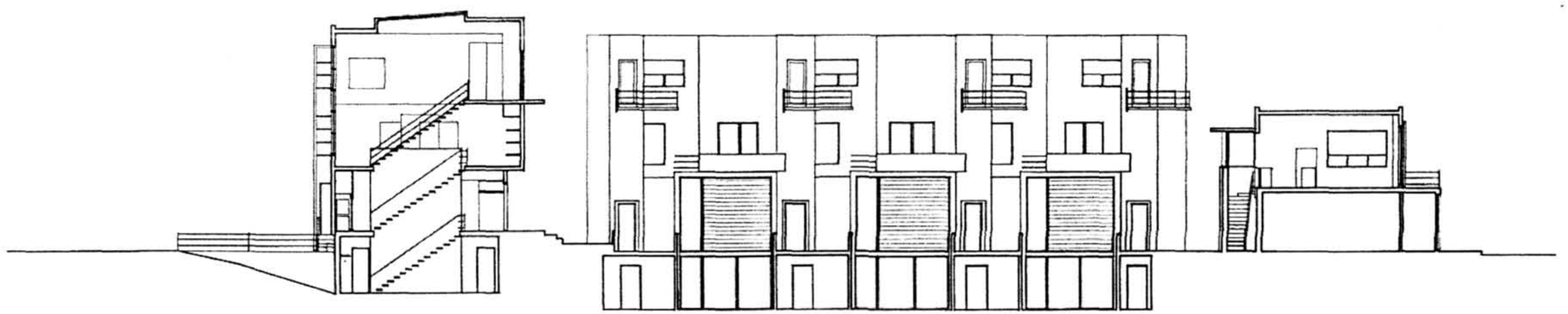


North Elevation

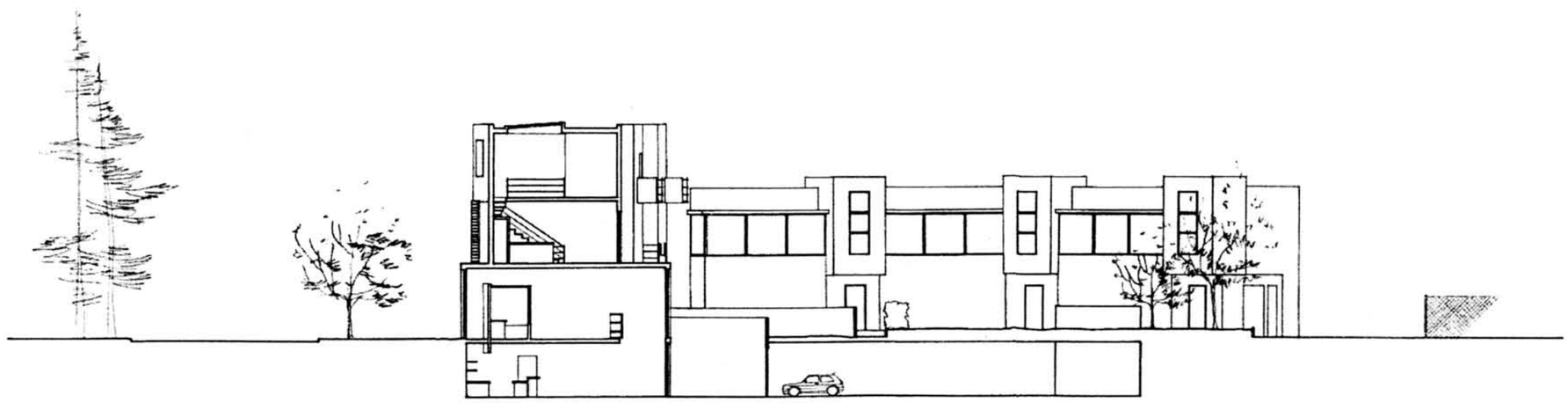


East Elevation

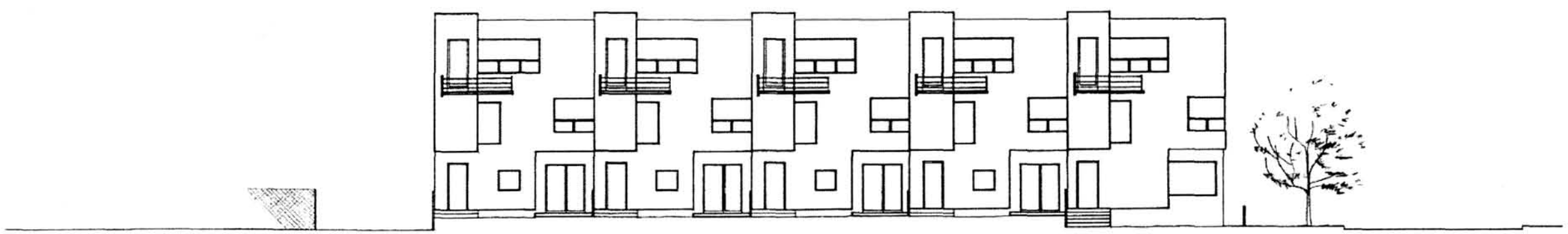
West Elevation



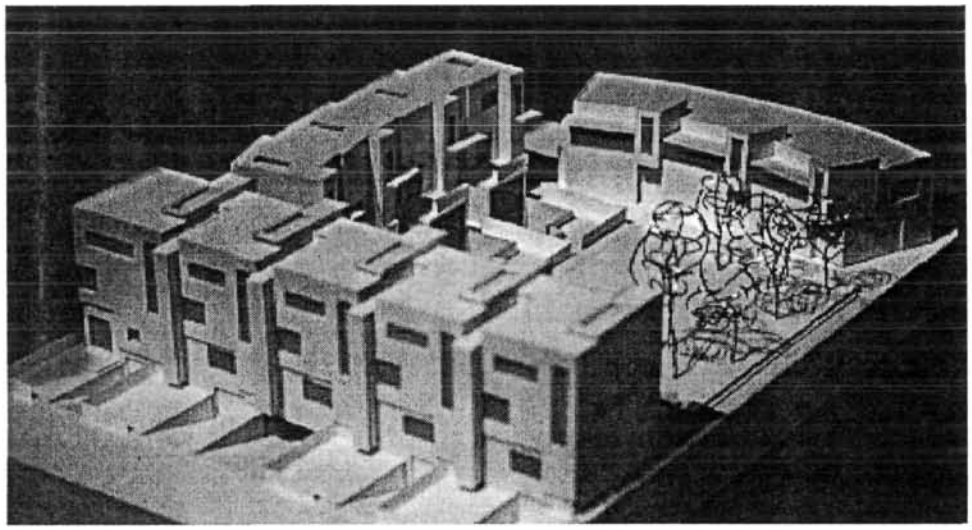
North Garden Elevation /Section a-a



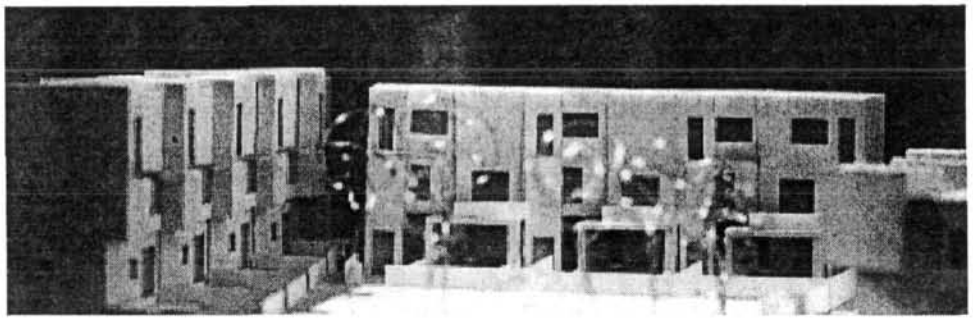
East Garden Elevation /Section b-b



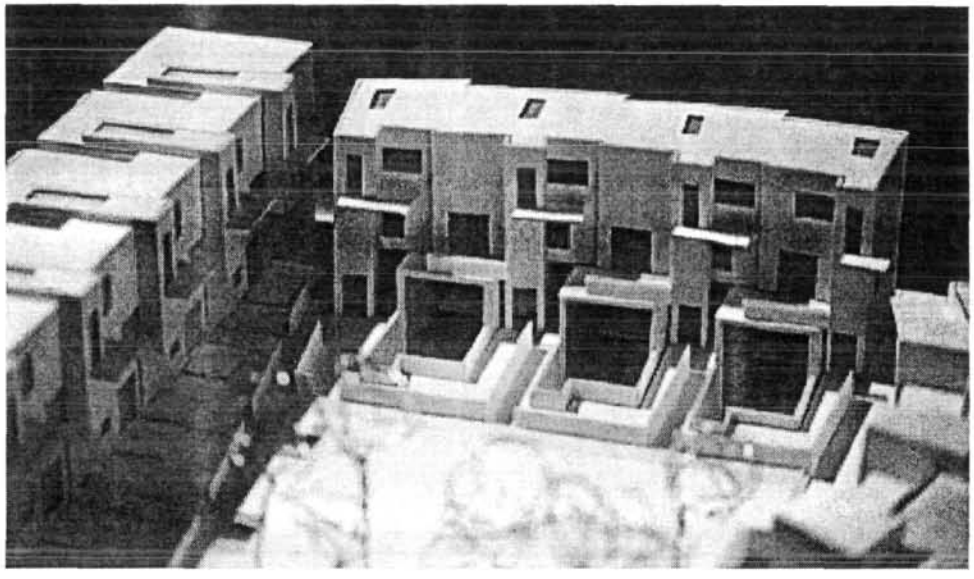
West Garden Elevation



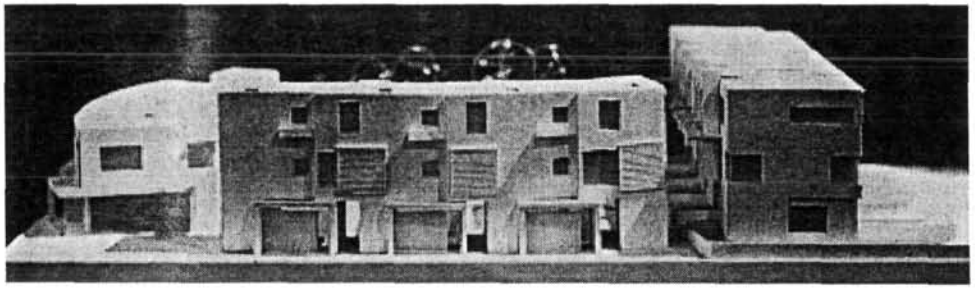
model: view from west showing family housing in the foreground, with private and shared garage entries fom the existing lane, as well as the relationship of built forms to each other and to the garden.



model: view from south looking towards the front of the family housing. The three live/work studios (centre) are shown from grade level. Walkways to the street and front doors to the upper apartments are adjacent to each live/work unit.



model: view from south into shared garden, showing the private gardens for the family housing and apartments, as well as the below-grade, outdoor live/work spaces.



model: view from north showing live/work studios on ground floor, walkways into the shared garden within, and two storey apartments above. To the left is the corner retail unit with studio aparment above, and the right is row of family housing.

AFTERWORD

The theory that this MDP presented, is that one means of realizing the ecocentric change of consciousness that deep ecology proposes is through the experience of architecture that establishes a deeper relationship between ourselves and our built environment. In relating the practice of architecture to the philosophy of deep ecology, an attempt was made to explore something outside of the more normative approaches to the environmental crisis generally practiced by architects. The exploration attempted to delve deeper by asking for more than just mitigation measures from architecture, and instead attempted to use architecture as a means of addressing what is proposed as the root cause of the environment crisis. The focus was intentionally limited to consider what was felt to be the most essential component of deep ecology – the shift from an anthropocentric to an ecocentric worldview. This focus does not invalidate the existing solutions for reducing the impacts of architecture on the environment, rather such technology and know how in the practice of architecture are an essential overlay to the theory presented here. However, in the narrowed focus of this MDP, some of the points within the philosophy of deep ecology that have a possible role in the practice of architecture and the design of the built environment were given less significance, most notably the importance of limiting our consumption of resources and reducing our impact on the natural environment.

To propose ways to reduce our impact on the environment from within the practice of architecture was not part of the intended scope of this project, however, for future investigations, there are a number of proposals put forth by deep ecologists addressing these issues that have strong implications for architects and designers of built form. These proposals are as controversial as the argument that our society must adopt an ecocentric worldview in order to effectively address the environmental crisis, and an investigation of them

could easily provide the theoretical and design framework for a future MDP. The first proposal, put forth by US ecologist Paul Ehrlich, addresses on a large scale the issue of suburban sprawl presented in this MDP. Ehrlich argues that the first step needed to realistically address the global environmental crisis is to immediately cease the development of virgin lands, stating that "in a country like the United States, there is not the slightest excuse for developing one more square inch of undisturbed land."[80] Agreeing with wilderness protection advocate Roderick Nash's belief that humans have no right to more than a portion of the planet, Ehrlich argues that we must begin to set limits on the extent of our built environment and its encroachment on the natural environment. A similarly radical proposal was put forth by Paul Shepard in 1973, that "the interiors of continents and islands be allowed to return to the wild."[81] In his ecocentric scheme, a human population of 8 billion (which he predicted for the year 2020) would be accommodated only in "cities strung in narrow ribbons along the edges of the continent,"[82] with the remaining expanses of inland area left as unmanaged wilderness. Such proposals suggest an entirely new way of designing and living in cities in North America, with radically higher densities and smaller living spaces than those to which we have become accustomed. To begin to convincingly suggest that such a move is possible, and that it can be achieved in our culture without an enormous sacrifice in quality of life,[83] requires the design of architecture and cities that realize it.

Another key component of deep ecology that was not focussed on specifically in the exploration conducted in this MDP, is a reduction in resource consumption. To propose ways to reduce our current patterns of consumption and our rate of resource exploitation is an enormous undertaking; it is one that eludes many deep ecologists and certainly one that, even simply from the perspective of architectural practice, exceeded the scope of this investigation. It is clear that there are an increasing number of environmental impacts for

architects to be aware of – from the immediate and long-term air, water and ground pollution concerns of materials used, to the consumption of fuel and materials used in construction, the consumption of land on which the building sits, and the energy the building consumes in its daily use. There are also an increasingly varied number of options available to architects seeking to mitigate them. Other issues also come into play in mitigating the negative effects involved with a building and its construction, such as budget constraints and client goals. In most cases, technologies and materials that reduce a building's long-term impact on the environment involve a greater financial cost to the client. In some cases, the initial costs will be made up rapidly through future savings, but in other cases the increased cost will never be realized as a financial benefit to the client, making it an unlikely choice. This makes the issue of reducing environmental impacts more complex, as it is clear that a discrepancy exists between *cost* and *price*, in both the technological means of reducing our impact on the environment and in the consumption of land used in the development of suburbs. As discussed by Douglas Kelbaugh in Common Place: Toward Neighbourhood and Regional Design, price is "the numerical value affixed to goods and services by the market" while cost is "the fully reckoned cost of providing goods or services."[84] Also known as *true cost*, the cost takes into account the concerns of deep ecology and the issues put forth in this MDP, such as degradation of the natural and built environments and the corresponding loss in of quality of life.

To attempt to resolve these issues within the context of deep ecology and architecture, and to apply them to this MDP investigation, would have necessitated a shift in focus away from the experiential potential of architecture and its possible role in realizing deep ecology's underlying premise. However, some small-scale solutions of a less technical nature were considered, such as the use of cross ventilation, maximised in every unit through narrow floor plates, open plans and window openings in opposite walls. At the same

time, the amount of natural light is maximised by permiting the entry of light from two or three different directions. The open courtyard is directed to the south to allow for maximum sun exposure, combined with built-in shading devices in the live/work studios, which have generous glazing on this side to capture as much natural light as possible. As well, deciduous trees are planted in the courtyard garden to filter the strong prairie sunlight and cool the units during the summer, while allowing for greater sun penetration during the winter months when the leaves have fallen and heat gain in the units is beneficial.

Exploring architecture's ability to realize deep ecology's primary goal of altering our perception of the natural world through the establishment of an experiential, spiritual, and bodily connection with its inhabitants, was the main interest in this project. The argument presented was that the natural environment and the built environment suffer similar degradation as the result of our current perception of the natural world and our place within it. The solution proposed was that the underlying premise of deep ecology, which deep ecologists suggest is the only true means of addressing the crisis of the natural environment, be carried over to the human built environment. In this case, the only true means of addressing the degradation of the built environment is through an architecture that strives to realize the change in consciousness that deep ecology seeks. In the end, it is suggested that a meaningful, realistic alternative to suburban sprawl is both necessary and possible, and architects have within their power the ability to provide it *and* to achieve the proposal that this MDP puts forth – that meaningful architecture can effectively alter people's consciousness about the environment. The practice of architecture can realistically address deep ecological concerns with current environmental impacts with regard to built form *and* meaningfully address the deep ecology platform that we must fundamentally change our perception of the environment. Architects can provide higher density, lower impact living spaces that also address a need for humans to feel connected to, and

content in, their living environment. Architecture must be designed with the goal of making its inhabitants feel that they are a part of it, as they are of the natural environment, rather than simply surrounded by it. The larger aim, beyond the completion of this MDP, is to practice architecture with the ideal of realizing deep ecology's underlying premise *and* to achieve the goal of significantly reducing our consumption of resources and our impact on the environment.

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1 Wilson, Alexander. The Culture of Nature: North American Landscape From Disney to the Exxon Valdez. (Toronto: Between the Lines. 1991), p 197.

2 Sesssions, George "Deep Ecology: Introduction." in Michael Zimmerman (ed.). Environmental Philosophy: From Animal Rights to Radical Ecology. (New Jersey: Prentice-Hall Inc. 1998), p 172.

3 It must be noted that concepts of nature and what is natural are human-constructed notions, and are thus limited by the very framework from within which any society operates. As Neil Evernden suggests in The Social Creation of Nature, "nature justifies nothing, or anything...ecology is today's official voice on ecological matters, an institutional shaman that can be induced to pronounce natural whatever we wish to espouse." (p 15.) Nature is always understood by humans from an inherently human perspective - we are fundamentally incapable of understanding it by any other means. The human perspective is in turn unavoidably skewed by the accepted societal and cultural biases from within which we operate – to the end that while nature exists as a *physical* reality our primary understanding of it is as a *socially* constructed entity. That is, "what we know of nature is what we have *constituted* as nature." (p 30.) While the idea of nature as a socially constructed entity is not the focus of this paper, it needs to be acknowledged at the outset, and particularly in the discussion of the philosophy deep ecology, as something that unavoidably influences the issues the paper takes aim at in both its discussion and its proposed architectural response.

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5 Berry, Thomas. "The Viable Human" in Michael Zimmerman (ed.). Environmental Philosophy: From Animal Rights to Radical Ecology. (New Jersey: Prentice-Hall Inc. 1998), p 183.

6 Sessions, George. p 172.

7 Glasser, Harold. "Demystifying the Critiques of Deep Ecology" in Michael Zimmerman (ed.). Environmental Philosophy: From Animal Rights to Radical Ecology. (New Jersey: Prentice-Hall Inc. 1998), p 213.

8 McDonough, William. p 26.

[9] Sessions, George. p 167.

[10] Wilson, Alexander. p 85.

[11] Sessions, George. p 168.

[12] Zimmerman, Michael E. "Rethinking the Heidegger – Deep Ecology Relationship." Environmental Ethics. (15 no. 3 Fall 1993), p 199.

[13] Sessions, George. p 167.

[14] Ibid. p 199.

[15] Husserl, Edmund. The Crisis of European Sciences and Transcendental Phenomenology. (Evanston: Northwestern University Press. 1970), p 104.

[16] Ibid. p. 105.

[17] Wilson, Alexander. p 127.

[18] Nixon, Bob as cited in Sessions, George. "Ecocentrisim, Wilderness, and Global Ecosystem Protection." in Michael Zimmerman (ed.). Environmental Philosophy: From Animal Rights to Radical Ecology. (New Jersey: Prentice-Hall Inc. 1998), p 248.

[19] Maser, Chris. Sustainable Forestry: Philosophy, Science and Economics. (Delray Beach: St. Lucie Press. 1994), p 79.

[20] Sessions, George. p 246.

[21] Sessions, George. p 246.

[22] Rowe, Peter. Making a Middle Landscape. (London: The MIT Press. 1991), p 3.

[23] Rowe, Peter. p 4.

[24] Rowe, Peter. p 4.

[25] Rowe, Peter. p 4.

[26] The most famous pre-war suburbs evolved out of the Garden Cities movement, led by Ebeneezer Howard at the turn of the century (McDonough, William. p 31.) Garden Cities were conceived with a strong socio-economic and philosophical basis that intended to bring its inhabitants into close contact with nature. Letchworth, built outside London in 1904, was the first town to be built based on Howard's

model. Prior to the 1919 construction of Welwyn, also outside London, Howard describes his desire to provide self-sufficient communities: *a population of 40-50,000 will be provided for, efforts being made to anticipate all its social, recreative, and civic needs. The aim is to create a self-contained town, with a vigorous life of its own...* (McDonough, William p 31.) However, critics agree that while his premise was socialist, its "orderly and totalitarian" realization was something of a failure.

27 McDonough, William. p 42.

28 McDonough, William. p 42.

29 Windsor Liscombe, Rhodri. The New Spirit: Modern Architecture in Vancouver. (Vancouver, Douglas & MacIntyre, 1997), p 46.

30 Allen, Babara. "The Ranch-Style House in America: A Cultural and Environmental Discourse." Journal of Architectural Education. (49, no. 3 February 1996) p 161.

31 Levitt's concern for the welfare of the people whom he sought to house is reflected in his statement "The masses are asses!" (Allen, Barbara. p 161.)

32 Rowe, Peter. p 50.

33 Rowe, Peter. p 68, 77.

34 Rowe, Peter. p 73.

35 Allen, Barbara. p 159.

36 Rowe, Peter. p 50.

37 Johansson, Per-Olov and Karl-Gustaf Löfgren. The Economics of Forestry and Natural Resources. (Padstow: TJ Press Ltd., 1985), p 240.

38 Terry Brooke, Brooke Associates.

39 described in 1995 Bill 32, Third Session, 23rd Legislature, 44 Elizabeth II. The Legislative Assembly of Alberta, Municipal Government Amendment Act, 1995 Division 8, Section 664: "(1) A subdivision authority may require the owner of a parcel of land that is the subject of a proposed subdivision to provide part of that parcel of land as environmental reserve if it consists of a) a swamp, gully, ravine, coulee or natural drainage course, b) land that is subject to flooding or is, in the opinion of the subdivision authority, unstable, or c) a strip of land, not less than 6 metres in width, abutting the bed or shore of any lake, river, stream or other body of water for the purpose of i) preventing pollution, or ii)

providing public access to and beside the bed and shore."

40 In both cases the total developable land will actually be that amount minus the land required for roads, laneways and municipal reserve land for public utilities. 1995 Bill 32, Third Session, 23rd Legislature, 44 Elizabeth II. The Legislative Assembly of Alberta, Municipal Government Amendment Act, 1995 Division 8

41 Terry Brooke, Brooke Associates.

42 Rowe, Peter. p 44.

43 Terry Brooke, Brooke Associates.

44 Brown, John. "Deep Architecture: Environmental Notes from the Margin." (1997?) p. 3.

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48 Maser, Chris in Sessions, George. p 247.

49 Sorkin, Michael (ed), Variations on a Theme Park: The New American City and the End of Public Space. (New York: Hill and Wang, 1992), p xiii.

50 Kunstler, James Howard. Home From Nowhere: Remaking Our Everyday World for the 21st Century. (New York: Simon and Schuster, 1996) p 24.

51 Rybczynski, Witold. "Housing without Architects." Architecture. (August, 1997) p 81.

52 Rowe, Peter. p 38.

53 The Oxford Dictionary of Current English. (New York: Oxford University Press, 1996) p 169.

54 Rowe, Peter. p 39.

55 Kunstler, James Howard. p 98.

56 Kunstler, James Howard. p 32, 84

[57] Feldman, Roberta. "Settlement Identity: Psychological Bonds with Home Places in a Mobile Society." Environment and Behaviour (22, no. 2 March, 1990) p 185.

[58] Kunstler, James Howard. p 17.

[59] Feldman, Roberta. p 223, 188.

[60] Feldman, Roberta. p 188.

[61] Feldman, Roberta. p 184.

[62] Rybczynski, Witold. p 81.

[63] Feldman, Roberta. p 185.

[64] Kunstler, James Howard. p 22.

[65] Kunstler, James Howard. p 82.

[66] Kunstler, James Howard. p 83.

[67] Auster, Paul. Moon Palace. (New York: Penguin Books, 1989) p 139.

[68] Zimmerman, Michael E. "Rethinking the Heidegger – Deep Ecology Relationship." p 199.

[69] Ibid. p 199.

[70] Ibid. p 199.

[71] Brown, John. p 5.

[72] Feldman, Roberta. p 188.

[73] Feldman, Roberta. p 188-89.

[74] Brown, John. p 7.

[75] Feldman, Roberta. p 189.

[76] Kunstler, James Howard. p 82.

[77] McDonough, William. p 54.

[78] Wilson, Alexander. p 130

[79] LaChapelle, Dolores. "Ritual is Essential." In Alan Drengson and Yuichi Inoue (eds.) The Deep Ecology Movement: An Introductory Anthology. (Berkley: North Atlantic Books, 1995) p 221.

[80] Sessions, George. "Ecocentrism, Wilderness, and Global Ecosystem Protection." in Michael Zimmerman (ed.). Environmental Philosophy: From Animal Rights to Radical Ecology. (New Jersey: Prentice-Hall Inc. 1998), p 254.

[81] Ibid. p 252.

[82] Ibid. p 252.

[83] See Appendix, in particular the seventh point of the eight point deep ecology platform.

[84] Kelbaugh, Douglas. Common Place: Toward Neighbourhood and Regional Design. (Hong Kong: University of Washington Press. 1997), p 29.

ILLUSTRATIONS

Deep Ecology section break: Emily Carr "Forest Abstract" From: http//www.bcarchives.gov.ca/exhibits/pdp/carr/em_carr.htm

The Resource Mentality section break: photomontage of photos from Alexander Wilson's The Culture of Nature: North American Landscape From Disney to the Exxon Valdez.

Monoculture and Placelessness section break: original photograph of Levittown, New York from: http//www.lcweb2.loc.gov/ammem/gottschoSubjects06.html.

Ecocentrism and Architecture section break: Emily Carr "Sombreness Sunlit" From: http//www.bcarchives.gov.ca/exhibits/pdp/carr/em_carr.htm

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APPENDIX

The following eight points, taken from page 196 of Environmental Philosophy: From Animal Rights to Radical Ecology, were established by Arne Naess and George Sessions to define a general platform for the deep ecology movement.

1. The well-being and flourishing of human and non-human life on Earth have value in themselves (synonyms: intrinsic value, inherent worth). These values are independent of the usefulness of the non-human world for human purposes.
2. Richness and diversity of life contribute to the realization of these values and are also values in themselves.
3. Humans have no right to reduce this richness and diversity except to satisfy vital needs.
4. The flourishing of human life and cultures is compatible with a substantially smaller human population.
5. Present human interference with the non-human world is excessive, and the situation is rapidly worsening.
6. Policies must therefore be changed. These policies affect basic economic, technological and ideological structures. The resulting state of affairs will be deeply different from the present.
7. The ideological change will be mainly that of appreciating life quality (dwelling in situations of inherent value) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between bigness and greatness.
8. Those who subscribe to the foregoing points have an obligation directly or indirectly to try to implement the necessary changes.