

NEW PATTERNS OF  
SUBURBAN SETTLEMENT

by

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## I. INTRODUCTION

### Intent

The purpose of this thesis is: to develop a new pattern of suburban residential settlement which responds to the desires of the mass housing market and, at the same time, reduces the high level of land and energy consumption which is inherent in the present pattern(s) of suburban settlement.

### Definition of Suburbia

Suburbia in this thesis will be treated more as a physical pattern than a demographic construct. Technically, a suburb is a settlement which is near to or dependent on a major city. However, I feel it is more valid to think of the residential areas of suburbia as areas of relatively low-density, primarily single-family detached houses which are owner-occupied, and which are relatively homogeneous in regard to the size of the dwelling and the income level of the residents. This definition could include, therefore, areas within the corporate limits of a city, or a major portion of the residential areas of many towns and cities under 250,000 population; these are areas which are suburban in their "feel".

## Background

For many, a home in suburbia is a major part of the American dream. In recent years, however, realization of that dream has become more and more difficult. The cost of housing has risen remarkably fast in the past few years, far faster than personal income. There are many reasons for this sharp increase, some of which cannot be significantly modified by design (e.g., costs of materials and labor). However, a major component of the increase in housing costs is directly responsive to design and planning: the size of the lot. Lot sizes have increased as house size has increased (the median single family house has increased from 894 square feet in 1950 to 1590 square feet in 1976<sup>1</sup>), and in some communities minimum lot sizes are fixed by zoning. Furthermore, land costs have risen more sharply than any other component of housing costs, due in large part to speculation and the increasing scarcity of land within reasonable commuting distance of major urban centers.

Unfortunately, attempts by architects and planners to alleviate the housing problems of suburbia have not met with great success. Most of the American new towns have suffered from problems of capitalization; the massive investments required and the tremendous risks involved have caused most developers to shy away from them.

Cluster housing, which was widely touted as the answer to the housing problems of suburbia, has been frequently rejected by potential suburbanites. According to Bernard C. Meltzer, former chairman of the Philadelphia City Planning Commission:

"The planners love this idea, the professors love it, the media love it, the bankers love it, everybody loves it, except one group--the public. As you go through the Delaware Valley you'll see planned community after planned community sitting there empty and bankrupt. The public has said to hell with all the shared ownership of woods and Olympic-sized pools. They're saying: 'I'd rather have my own pool and my own barbecue stand and where I can cut my own grass'."<sup>2</sup>

It is my contention that the attempted solutions to the problems of housing in suburbia put forward by architects and planners, while praiseworthy in their overall objectives, have failed, at least in part, because those professional groups have been unwilling or unable to recognize the validity of the symbolism of suburbia. This tacit criticism of the suburban lifestyle<sup>3</sup> held by many professionals seems to be based on widely held beliefs about suburbia which Herbert Gans and others have shown to be untrue. Gans has found that suburbia is no more homogeneous than other areas of the city, that social and organizational hyperactivity is atypical, and that there are more than one type of suburbia: working-class,

middle-class, upper-class and so on. Furthermore, the suburban dweller is not likely to be much different from his counterpart in the city, and what differences there are can be attributed more to a predisposition to live in suburbia rather than the physical layout and social structure of suburbia itself.<sup>4</sup>

I feel that there is a symbolic language of suburbia which should be explored as a prelude to designing for suburbia. I further contend that: if the desires of the mass housing market can be satisfied in denser living arrangements, then a possible method would be to utilize in these denser settlements the familiar forms and symbols of traditional suburbia, though not necessarily in the same manner as at present.

The second section of this thesis outlines the development of American domestic architecture and planning in relation to the attitudes of society, including a discussion of the importance of symbolism in architecture and its place in suburbia. The third section is a design case study which illustrates how my concerns were integrated into a new suburban pattern.

## II. DEVELOPMENT OF SUBURBAN SYMBOLS

The symbols and forms of American suburbs have their roots in our history; the intent here is to briefly trace the development of American domestic architecture and town planning, and to address in some detail the attitudes which have shaped their forms. From an understanding of these attitudes, some recognition of the meanings of these physical symbols may be realized.

### The Medieval Mind

I contend that the most prominent influence on our architectural traditions has been British, and the Renaissance was very late in coming to Britain. Some inroads into British provincialism had been made as early as the reign of Henry VIII, but the implications of the Renaissance for the plastic arts were not fully understood until well into the seventeenth century with the advent of Wren (by this time, the Baroque was in full bloom in Italy). Thus, the prevailing attitude brought over by the first settlers to America was essentially medieval, rather than belonging to the Renaissance.

The architecture of medieval man reflected an attitude of non-intervention in God's order. Medieval man had achieved some level of control over his world, but he did not revel in this control as Renaissance man was to do

later. He felt that his attempt to dominate the world would bring about his ruin by working against the natural order.<sup>5</sup>

In architecture, this medieval attitude resulted in forms which were additive rather than artistically conceived as a unity. Construction systems were frankly exposed, and building materials were left in a nearly natural state.<sup>6</sup> This rambling and spontaneous quality can be seen both at the scale of the house and at the scale of the city.

In the house, this usually meant a gable roof, because it is easy to frame, can be added to easily, and can have a pitch which either sheds or retains snow as desired. Wood frame construction was also well suited to this additive type of building, although the main reason for its prevalence in America was more likely the abundance of wood here, at least in the East. Porches or verandas were common in warmer climates, both to provide useful outdoor living space and as sun control devices. Since no mechanical means were available to temper the effects of climate and heating systems were not well-developed, house form had to respond to local climatic conditions. House plans were compact in cold regions, and often two storeys, to take advantage of the limited warmth available from fireplaces as well as the heat radiated from the

mass of the chimney stack itself (the massive stone or brick of the fireplace structure also served to stabilize the wood frame of the house). The salt box profile, common in New England, served to minimize the wall area exposed to north wind. Southern houses, in contrast, could afford to have looser plans which were better for summer ventilation, and the chimney was usually at one end of the house.<sup>7</sup>

Until well into the eighteenth century, windows were quite small and often unglazed (usually covered in oilcloth or a similar translucent material), so operable shutters were a necessity for keeping out the cold. Even as windows became larger after about 1750<sup>8</sup> and glass was easier to obtain, the shutters were retained as added protection against air infiltration.

In regard to the form of the city, the medieval conception of limited order resulted in rather free and loose town plans, like that of early Boston, which were based on relationships between activities and on community movement patterns rather than on preconceived order and spatial effects. This is not to say that the spaces created were without interesting qualities, but rather that they were formed without conscious reference to a larger whole. The all-pervasive grid plan was to come later.<sup>9</sup>

## The Classical Mind

By the beginning of the eighteenth century, the Renaissance in the plastic arts was well under way in England, where it merged with the beginnings of the Enlightenment\*. In America, pioneer anarchy was transforming into complex community life.<sup>10</sup> A new conception of man's place in the universe was being formed, based on the belief that through rational thinking, man could discover the true order of things. This true order of things allowed for man a larger role in shaping his destiny and his built form.<sup>11</sup> Vincent Scully writes:

"As in Florence three hundred or so years before, the middle class directed its energies toward the creation of a kind of classicism in its own image, seeking out reasonable, balanced, closed and ordered forms."<sup>12</sup>

At the scale of the city, the new emphasis on rationalism led to the imposition of the grid plan, beginning at New Haven. The grid plan was "ideal for impatient settlers on a continental coast", because of the ease of laying it out, and indeed it had been used by the Greeks and the Romans for the same purpose.<sup>13</sup> The English were also using it in Ireland at the same time it was being

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\*The Enlightenment had sprung from England's previous literary flowering and the rebirth of an interest in all Europe in scientific inquiry. It was furthered by the questioning of the Catholic Church during the Reformation.

used in America.

New Haven's original grid was made up of nine squares, the center square being reserved as a commons. The squares were further subdivided into smaller cubes--the houses which made up the bulk of the urban fabric. The row house configuration was resisted, at least at first. Instead, trees were used to define spaces.<sup>14</sup>

The grid was further refined in Penn's plan for Philadelphia and Oglethorpe's plan for Savannah, where open and closed units created a rhythm of square and street. The grid was later to reach its culmination on the vast flat prairies of America in the laying out of such settlements as Oklahoma City and Salt Lake City.<sup>15</sup>

The development of colonial neo-classicism at the scale of the house followed the same general lines of development as had former "classical" or "rationalist" periods<sup>16</sup>, namely Greco-Roman and Italian Renaissance. Not surprisingly, then, it was the original Greek forms which were revived. The progression of all these periods is illustrated in Table 1.

In the neo-classic eighteenth century, symmetry of the facade appeared along with regular rhythms set up in the placement of openings. Windows became larger and shutters were retained. The hip roof became prevalent because

TABLE 1. The Progression of the Classical Mind

STAGE OF DEVELOPMENT	EXAMPLES FROM PREVIOUS PERIODS	AMERICAN PERIODS
Beginnings, innovation and transition	Archaic Greek, Brunelleschi	William and Mary 1700-1725
Formalizing principles, rationalization	Early Classical, Early Renaissance, Alberti	Queen Anne 1725-1750
"Golden Age" of the great masters	Late Classical, High Renaissance, Bramante	Chippendale-Georgian 1750-1785
Mannerism and baroque--manipulating elements as ends in themselves	Hellenistic, Mannerism Baroque, Romano, Borromini	Adamesque-Federal 1785-1820

TENDENCIES IN AMERICAN CLASSICAL DEVELOPMENT

1. Progressive change from vertical to horizontal proportions.
2. More archaeologically correct use of classical orders.
3. More sculptural, three-dimensional sense.
4. More unity of composition.
5. Progressive lightening of form.
6. Development of better and more subtle compositional balance.

SOURCE: Alan Gowans, Images of American Living, (Philadelphia, J. B. Lipincott Co., 1964).

it yielded a closed form, implying completeness (the Mansard roof developed in France could serve the same purpose). Entrances became elaborated, with sidelights and a fanlight often surmounted by a broken pediment and supported by collonettes or pilasters which were wooden copies of English stone details. The fanlight began to disappear later because of the difficulty of constructing it, but was replaced by a rectangular headlight.<sup>17</sup> Brick became more common as a building material, signifying, perhaps, a higher level of stability and security in this new country.

By the time of the Federal period, American elites were already firmly established, despite the philosophy of Jeffersonian democracy. The architects who designed for these elites were familiar with all that was happening in England at the time. The influence of Adam was seen in America in the delicate plaster reliefs in such buildings as the White House, the urban townhouses of the wealthy merchants and the country villas of the landed gentry.<sup>18</sup>

### The Victorian Mind

From 1820 to about 1850, the forms of buildings remained much the same, but a different attitude was developing concerning their content and their appropriate use. A familiar term reflecting this is Victorianism. There

was a sense of "reviving" old styles, rather than viewing them as a direct outgrowth of rational thinking. This allowed an air of theatricality to develop, a feeling that architecture was a complex, "erudite game". A concern with symbolic values which exist outside of forms took precedence over functional requirements and beauty of composition. There were three periods of Victorianism: (1) Early Victorian, from 1820 to 1850, (2) High Victorian, from 1850 to 1880, and (3) Late Victorian, from 1880 to 1920.<sup>19</sup>

The Early Victorian period was characterized by a type of revivalism in which each historic style was felt to possess a particular symbolic attribute: "Roman to suggest civic virtue, Greek for liberty, Egyptian for permanence, Gothic for Christian ideals...."<sup>20</sup> During this early period, historical styles were not combined, since each form carried with it a set of rather stratified ideas which were to be conveyed without ambiguity.

By the High Victorian period (the period usually associated with the term "Victorian"), mixing of styles within a single building had become commonplace. In actuality, this combining process, at least in the hands of the better architects, was not haphazard, but was structured according to certain tastes and to create certain effects--"picturesqueness" of outline, an

emphasis on textures and massing<sup>21</sup>, and an unfolding of the building as the viewer moved through it.<sup>22</sup> This symbolic language, made up of elements from diverse sources, was used to express the ideals and aspirations of the upper and middle classes.<sup>23</sup> There is a close relationship between this attitude toward making form and the forms of contemporary suburbia. Thus this quote from Scully:

"...its introduction (referring to High Victorian picturesque eclecticism) into the city in both plan and buildings tended to break up the city's old intrinsic controls and to work towards the fragmentation of its fabric and the suburbanization of its form. That, too, served deeply seated American attitudes, strong in Jefferson: a distrust of urban civilization, a tendency to equate physical dispersion with political freedom."<sup>24</sup>

And this quote from J. M. Richards:

"(Suburbia) is not an assemblage of architectural designs but a fantasy woven from the vernacular elements that the ebb and flow of the tide of fashion have left convenient to the builder's hand."<sup>25</sup>

The forms which picturesque eclecticism gave to the city's plan were those irregular shapes which came from English garden planning, Andrew Jackson Downing (an architect and landscape architect)<sup>26</sup> and Frederick Law Olmsted, first in his designs for parks and later in his plans for whole subdivisions such as Riverside, Illinois.<sup>27</sup> Scully feels that these forms were derived

from a separation and intensification of two prime qualities of the Baroque period: a persistent geometry and a tendency towards expressive, undulating plastic forms.<sup>28</sup> At any rate, this irregular street planning was later to be seen in suburbia in the late 1950's, as "enlightened" developers sought to mitigate the monotony of the grid plan which had been prevalent in the immediate postwar period (when it had again been used as an expedient device to quickly accomodate "impatient settlers").

At the other end of the scale, important changes in building techniques were occurring during the Victorian era. Sawmills began the mass-production of thin joists and studs which were easy to transport and handle, in contrast to the rough-hewn timber members previously used in the old mortise-and-tenon frame. As a result, new types of framing were possible, with variations of the so-called "balloon frame" most common.<sup>29</sup> The inherent planar and linear qualities of this type of framing reinforced, and were reinforced by, the long-standing American tendency to make built forms thinner, tighter and crisper than European models.<sup>30</sup>

By the end of the nineteenth century, a reaction to picturesqueness and eclecticism had begun to form, a tendency towards what was called "realism". To the more creative architects (Sullivan, Furness, Richardson),

this meant an opportunity to incorporate technological advances into new structural configurations. However, to most architects, it meant something like a return to the Early Victorian period, but with a much higher level of sophistication and archaeological correctness of form and detail. By this time, clients were demanding certain styles for certain purposes, and the majority of architects were willing to go along. There was also another group whose members championed one particular style or the other as the "correct" style (e.g., Pugin and Ruskin, who championed the Gothic).<sup>31</sup> This attitude was later to reappear in the Modern movement, especially among the Russian Constructivists, who felt that their particular type of architecture was the "correct" one for furthering the ideals of Marxist socialism.<sup>32</sup>

I do not wish to extend the discussion of history further into the Modern movement. Suffice it to say that the Modern movement has not been a major source for the development of the suburban house form, and the reasons for this would be better addressed through a discussion of symbolism rather than history.

### The Importance of Symbolism

Symbolism has been frequently neglected as an explicit part of the design process. However, since the

human cognitive process comes to understand the unfamiliar in terms of what it already knows, built forms take on meaning as a result of previous associations, whether or not that meaning was consciously directed.<sup>33</sup> I feel that symbolism is an important part of richness, diversity and meaningfulness in our environment and, as such, it should be considered in a positive manner. If it is ignored, it may be reconstituted in the form of "inadvertent symbolism", in which forms are ascribed meanings (usually not complimentary), based on the associations of the viewer.<sup>34</sup>

One of the earliest major steps in man's cultural evolution was his realization of "self" as distinct from the rest of the world around him. To help compensate for his powerlessness in the face of the power of nature, he devised a range of symbols in order to deal with that power. Symbolism "may have been the initial vehicle of human development."<sup>35</sup>

The "clean slate" theory of human development is becoming harder to substantiate; it is more likely that some of our brains' circuits are pre-programmed.<sup>36</sup> A Symbolic language which is culturally disseminated may become "eidetically engrammed".<sup>37</sup> Eidetic refers to the process of recall most pronounced in persons with so-called "photographic memories". Eidetically engrammed

means that, according to Peter Smith, certain powerful images have been "imprinted" on our brains for so many generations that they are now part of our genetic makeup and therefore are passed on from parent to offspring. This is not to say that the elements of suburban houses are part of this primeval imagery, but rather that the structure of symbolism is important to the way our minds work on both conscious and unconscious levels. All language and abstract thinking is made up of a concatenation of symbols. Without them it is unlikely that our culture could have progressed.

### Symbolism in Architecture

The forms created in every historical period have taken on certain symbolic meaning: forms may suggest values; they may also suggest functions. In the first case, some of the meaning which has adhered to these forms was not intentionally created at the time of their building, but has come about because of certain values which are associated with the period in which they were built. To use examples from monumental buildings, Greek Doric suggests clarity, logic and precision, and French Renaissance suggests wealth, extravagance and authoritarianism. In the second case, there is also symbolism that is associated with certain elements which have persisted throughout many periods to denote various functions

or activities. Some examples are the steeple of the church, the dome of the capitol building and the arch to indicate an entrance. Again, some of the symbolic impact of these forms was not intentional but has been acquired as the forms were repeated. Today, a tall building with extensive glass area indicates office or administrative use, while the same form with balconies or curtains at the windows denotes an apartment tower. Acres of parking lots with numerous neon signs symbolize a commercial zone, and a marquee sets a building apart as a movie theater. These types of use indicators are important in differentiating the buildings and districts of the city. However, what is missing in modern buildings by architects, in my opinion, is a symbolic language capable of expressing the values and aspiration of individual as well as collective users.

The pioneers of Modern architecture wished to do away with the trappings of the past. In doing so, traditional symbolism was rejected: this is not to say that Modern architecture was anti-symbolic. Indeed, much of it, especially the original European version, did have its own symbolism. But the difference between the old symbolism and the new was significant. First, the leaders of the Modern movement were self-consciously avant-garde; they felt it necessary to invent forms which they thought

would express the forces which were changing society. In previous times, symbolism had been developed slowly, along with society, not in advance of it. There was a sense of shared experience in this type of symbolism which allowed clear communication to the user.

Furthermore, partially as a result of the Utopian-Socialist basis of Modern architecture<sup>38</sup>, and together with other forces current at the time, forms were created with the intent of furthering Utopian ideals; the importance of the individual was de-emphasized. Technology was seen as the inevitable means to achieve this Utopian state, so it was glorified in all its cold, hard logic.<sup>39</sup> Thus, where the old symbolism had spoken for men as individual, living persons and to Man as an abstract, collective concept, the new symbolism spoke only for Man as envisioned by architects.

This new symbolism was to rely on forms which had "natural" content apart from historic associations. The Constructivists in Russia were experimenting with pure geometric forms in the 1920's to determine what their natural symbolic content was. Unfortunately, the results of these experiments were lost or at least became unavailable after the advent of Stalin.<sup>40</sup> Subsequent research has not been able to prove that pure geometry has a natural content. Although Smith feels that some

symbolism may have become eidetically engrammed, apparently the cone, cube and sphere are not among those engrammed symbols. At any rate, those symbols which may be engrammed are more evocative of moods or emotional responses than of explicit meanings or ideological constructs.

The more doctrinaire of the Modern architects, such as Walter Gropius, wanted to restrict the use of architectural signs to two types: the indexical and the iconic. Indexical signs directly indicate use (e.g., linear corridors, arrows, vertical elevator shafts) and iconic signs are shapes which diagram a function (e.g., a building in which all parts are clearly separated according to use--a sketched plan of the building would correspond directly to a functional diagram). Historical references or signs based on conventional associations (which are symbolic signs, referred to elsewhere in the text simply as symbols) were considered insincere, uncreative and generally taboo. But as Charles Jencks has written:

"The only problem with this approach is that most architectural words are symbolic signs; certainly those which are the most potent and persuasive are the ones which are learned and conventional, not 'natural'. The symbolic sign dominates the indexical and the iconic, and even these latter depend somewhat on knowledge and convention for their correct interpretation. It couldn't work the way architects

hoped because no living language can; they are all based mostly on learned conventions, or symbolic signs, not ones which can be understood directly, without training."<sup>41</sup>

Although Modern architecture has changed considerably from its beginnings, the theories espoused by the pioneers of the Modern movement have been disseminated in one form or another through most of the architectural schools in this country. This dissemination is largely a result of the "diaspora" of German and Russian architects to this country and Great Britain in the 1930's.<sup>42</sup> Ironically, the forms which were to further socialist ideals were rejected by the socialist power structures in Germany and Russia in favor of the more tried and true authoritarian forms of the French Late Renaissance.<sup>43</sup> Instead, these visionary forms became the basis for American Establishment Architecture. By now the Utopian-Socialist content is gone, but the forms remain. Although devoid of their original meaning<sup>44</sup>, they have become symbolic (of other things) nonetheless as a result of repetition, yet the import of the forms is still the same--collective rather than individual. It is paradoxical that our capitalistic, pluralistic and individualistic society should be represented by Utopian-Socialist forms!<sup>45</sup>

## Symbolism and Suburbia

Architects have had little direct influence on suburban form. In our country, architectural influence on housing is restricted to the upper and lower ends of the economic spectrum: the rich can hire their own architects; the poor are provided architecture in the form of subsidized government housing. The majority in the middle do not generally have the financial resources (nor the inclination) to commission architects for their modest dwellings, and indeed architects are often reluctant to take on such commissions because they are usually unprofitable. As a result, suburbia is one area of built form which is largely the result of choices made by its inhabitants.<sup>46</sup>

The American suburban settlement is not suited to a collective symbolism which is Utopian or didactic. The collective symbolism of suburbia seems to be an aggregation of many images. At a large scale, the trees and lightly traveled, often winding streets evoke a semi-rural or small town image. The imagery of the houses themselves is usually drawn from the country estate, the ranch house or the villa, which speaks of a desire for separateness, even if within a community. The symbols are a statement of what exists, not part of a prescription for a better life. They are a part of a pre-industrial

symbolism, as a foil and balance to the technological symbolism of our places of work and commerce. This does not seem inappropriate, since the houses of suburbia are still built largely by pre-industrial means.

Even if the argument can be made that the Utopian-didactic type of symbolism is appropriate to a city hall, it is hardly suited to a middle-class bungalow. Mies van der Rohe's houses employed the same technological symbolism as did his office buildings and factories, but for the average homeowner, a house which speaks of the industrial process as a means to the creation of a better society is irrelevant and not even very interesting. It runs counter to all the reasons the suburbanite is living in suburbia: a degree of autonomy from society, not collectivist impulses; self-determination, not mass-production. The physical elements of suburbia communicate many things about social status, aspiration, personal identity, freedom, nostalgia.<sup>47</sup> All of these things, with the exception of freedom, were antithetical to the Europeans who established the Modern movement. Thus, the legacy the Modern movement has left us is an established mode of contemporary architecture which does not choose to deal with these issues.

### Graphic Analysis of Suburban Symbols

In order to catalog suburban symbolic elements for input in the design case study described in the third section of the thesis, a matrix was developed to display the elements of suburban symbolism and their various attributes. The symbolic elements were divided according to scale, ranging from the scale of an entire neighborhood to the scale of the house. Table 2 lists the elements which were included in the matrix. The left column of the matrix depicts the element graphically; in the four columns to the right are illustrations of the historical precedents, function, imagery and aesthetic qualities of the element, where applicable. Figure 1 is an example of one of the matrices.

### Summary and Potentials

Symbolism based on previous associations is important to the way the human mind perceives the built environment, but this type of symbolism has been de-emphasized by the Modern movement in architecture. However, the explicit historical symbolism which still exists in suburbia appears to be evidence of a desire on the part of the public to express things which are no longer expressed elsewhere in our cities. Partially as a result of this symbolism, suburbia has been generally overlooked as a

TABLE 2. Elements of Suburban Form

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 SUBDIVISION SCALE

Grid Plans  
 Curvilinear Plans  
 Cul-de-sacs  
 Parks  
 Old Apartments  
 New Apartments

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## STREET SCALE

House to Street Relationship  
 House to House Relationship--Sides  
 House to House Relationship--Back  
 Driveways  
 Alleys

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## LOT SCALE

Space Markers  
 Patios  
 The Front Lawn  
 Garages  
 Old Style House Plans  
 New Style House Plans

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## HOUSE SCALE

Gable Roof	Porches
Hip Roof	Entrance Elaboration
Mansard Roof	Steps
Gambrel Roof	Chimneys
Salt-Box Roof	Foundation Planting
Overhangs	Brick
Double-Hung Windows	Wood
Casement Windows	Stucco
Shutters	Shingles

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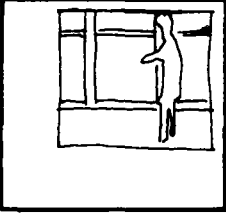
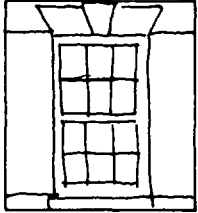
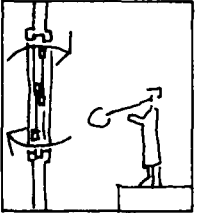
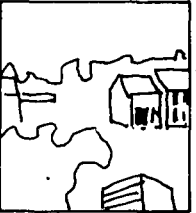
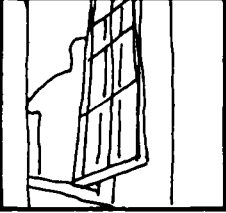
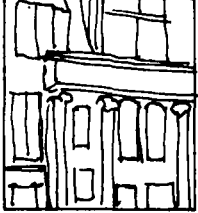
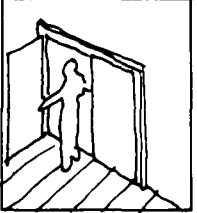
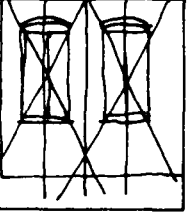
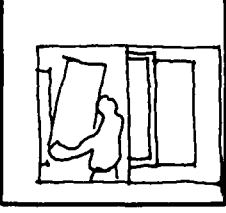
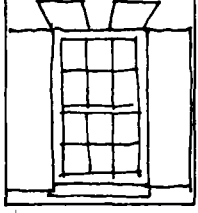
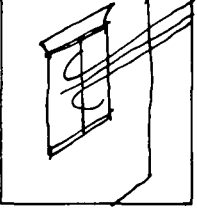
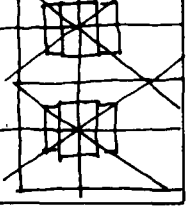

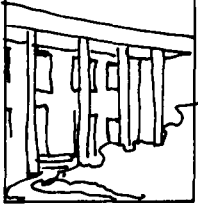
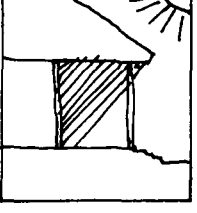

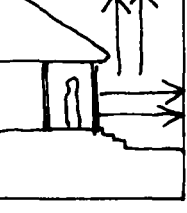
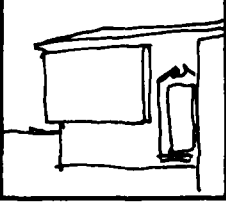
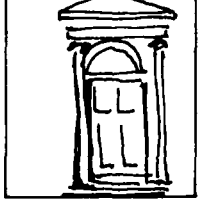
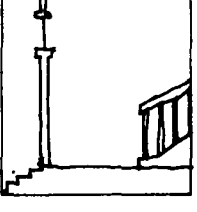
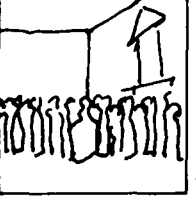
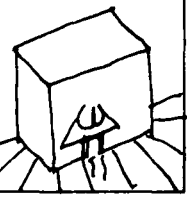

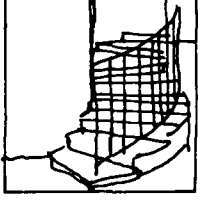
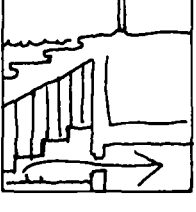
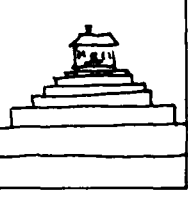
element	source	function	symbol	visual
				
				
				
				
				
				

FIGURE 1. Example of Matrix Used to Classify Suburban Symbolic Elements

potential area of concern for architects and planners, who find the symbolism distasteful. This has left the bulk of suburban design in the hands of builders, civil engineers and developers, who have not been very successful (because of their limited frame of reference) in coordinating the growth patterns of suburbia. Their work has been based on a passive acceptance of tendencies which are in the long run detrimental to our cities.

Obviously, condemning the formal aspects of suburbia, the ticky-tacky, is not striking at the root of the problem. After all, 40% of our population lives in suburban areas, certainly most of them by choice.<sup>48</sup> The low-density, semi-rural image of suburbia has obvious appeal for a large segment of our population.

However, in light of today's concern with land and energy conservation, the argument could be made that suburbia is in need of a change. Due to rigid zoning laws, suburban lots tend to have sizeable areas of unused space. The dispersion which results contributes to energy wasted in transit and also makes walking much less attractive as an alternative to driving. Other energy can be saved through the use of more insulation (already becoming quite common), but more attention needs to be given to such aspects of design as orientation and sunshading, which are generally neglected by tract builders.

The intent of this thesis as demonstrated by the drawings in section three is to design a suburbia which still retains the symbolism of private domain, personalization and low density and at the same time reduces land coverage and energy wasted in transit.

To this date, few planned unit developments have satisfied both sets of needs mentioned above because of their emphasis on shared communal spaces and a unification of expression which are at odds with the suburban lifestyle, and which ultimately contribute little in the way of further reduction of land coverage. Planned unit developments are designed by architects and planners, and the attitude behind their design seems to be: "While we're in the process of increasing the density, let's give the people better (i.e., non-symbolic) architecture and let's take away their front lawns so no one can clutter them up with ceramic flamingoes." However, as long as people have a choice in something as personal as their housing, they will opt for a "familiar architecture (which) is a symbol of what is real and tangible in an uncertain world"<sup>49</sup>, not something that is "good for them".

It is important, of course, to realize the need to mitigate the sprawl which has resulted from suburban development, and to realize that architects and planners have valuable expertise to lend to the search for solutions.

However, it is just as important to acknowledge the validity of suburban symbolism as a starting point in realizing other goals. Indeed, Modern architects have often employed many of the symbolic devices of suburbia by stressing the formal or functional values of the element rather than explicitly acknowledging the symbolism. Thus, a prime requisite in designing for suburbia is a recognition of the symbols and their use, and a realization that as long as the virtues of modern design are expressed in an alien language they will not be perceived or appreciated.<sup>50</sup> Modern architecture has developed many languages and employs many different types of elements. It only remains to acknowledge the suburban language as one which exists and is subject to refinement.

My idea is to design a suburban settlement which is familiar and incorporates desires and symbols, but which at the same time addresses larger societal issues of land and energy waste. In this way, land may be preserved for future generations while homeowners are happy in their suburban dwellings today.

### III. DESIGN CASE STUDY

This design case study is divided into four major parts. These include the introduction, site planning, unit planning and the design of the overall development.

The introduction establishes the importance of compromise in the design effort. The section on site planning states the goals for planning the site layout and the means of fulfilling those goals. The third section, unit planning, uses the same format to deal with the design of the units. The last section, overall design, describes the fundamental compromises in the design and compares the effectiveness of the overall development to the typical suburban model.

#### A. Introduction

Table 3 represents an initial analysis of some of the most important qualities of suburbia which directed my problem-solving efforts. This design case study is an attempt to retain the advantages of suburban living while alleviating or eliminating the disadvantages.

Obviously, some compromises were inevitable in the design; indeed, I feel my thesis requires fundamental compromises. The word compromise is unpopular in design circles; synthesis is the preferred term. However, I contend that compromise is the more correct term to apply

TABLE 3. Advantages and Disadvantages of Suburbia

	ADVANTAGES	DISADVANTAGES
SUBDIVISION SCALE	Grid plan provides orientation	Grid plan is deadly dull, particularly where trees are not abundant; can require massive earth-moving
	Curvilinear plan interesting, can work with landforms, slows traffic	Curvilinear plan can be extremely confusing, especially to visitors or emergency vehicles
	Cul-de-sacs can create a sense of neighborliness, greatly reduce traffic	Large number of cul-de-sacs make snow removal, other servicing difficult
		Apartments are separated by zoning, stigmatizing apartment dwellers
STREET SCALE	Streets lightly traveled (usually)	
	Familiar image	Restrictive zoning means boring arrangements
		Long blocks reduce the possibility of chance contacts
		No sidewalks because houses are too far apart, signifying a lack of interaction

TABLE 3. (Continued) Advantages and Disadvantages of  
Suburbia

	ADVANTAGES	DISADVANTAGES
LOT SCALE	Separateness assures control over own yard	Relationship between houses not considered; this can render some spaces useless if privacy is desired
	Front lawn as a place to display a "public front"	Wasteful of land-- front yard little used, side yards unusable
HOUSE SCALE	Separateness insures acoustical privacy	Separateness means greater heat loss, gain
	Choice of house-- customization possible	Choice of house configuration limited by zoning
		Houses often wastefully planned

to my design effort. Compromise implies that the validity of both points of view is affirmed, but that each side must also relinquish something. A series of trade-offs were required in the accomodation of the design program which will be explored by means of the text and drawings.

The sequence of steps involved in the development of the new suburban patterns is found in Figure 2. This diagram indicates how the concerns for preserving the symbolic language of suburbia were included in the design process.

## B. Site Planning

### Objectives

In the design of the overall neighborhood plan (Figures 3-6), the major goals were: (1) reduction of land coverage, (2) a street layout which allowed easy orientation as well as provided variety, (3) a recognizable pedestrian circulation system, (4) easy access to recreational areas, and (5) adaptability to varying landforms. The means by which these goals were realized is expanded in the following pages.

### Lot Sizes and Configurations

Since I felt it important to retain individual ownership of private lots as one of the prime characteristics

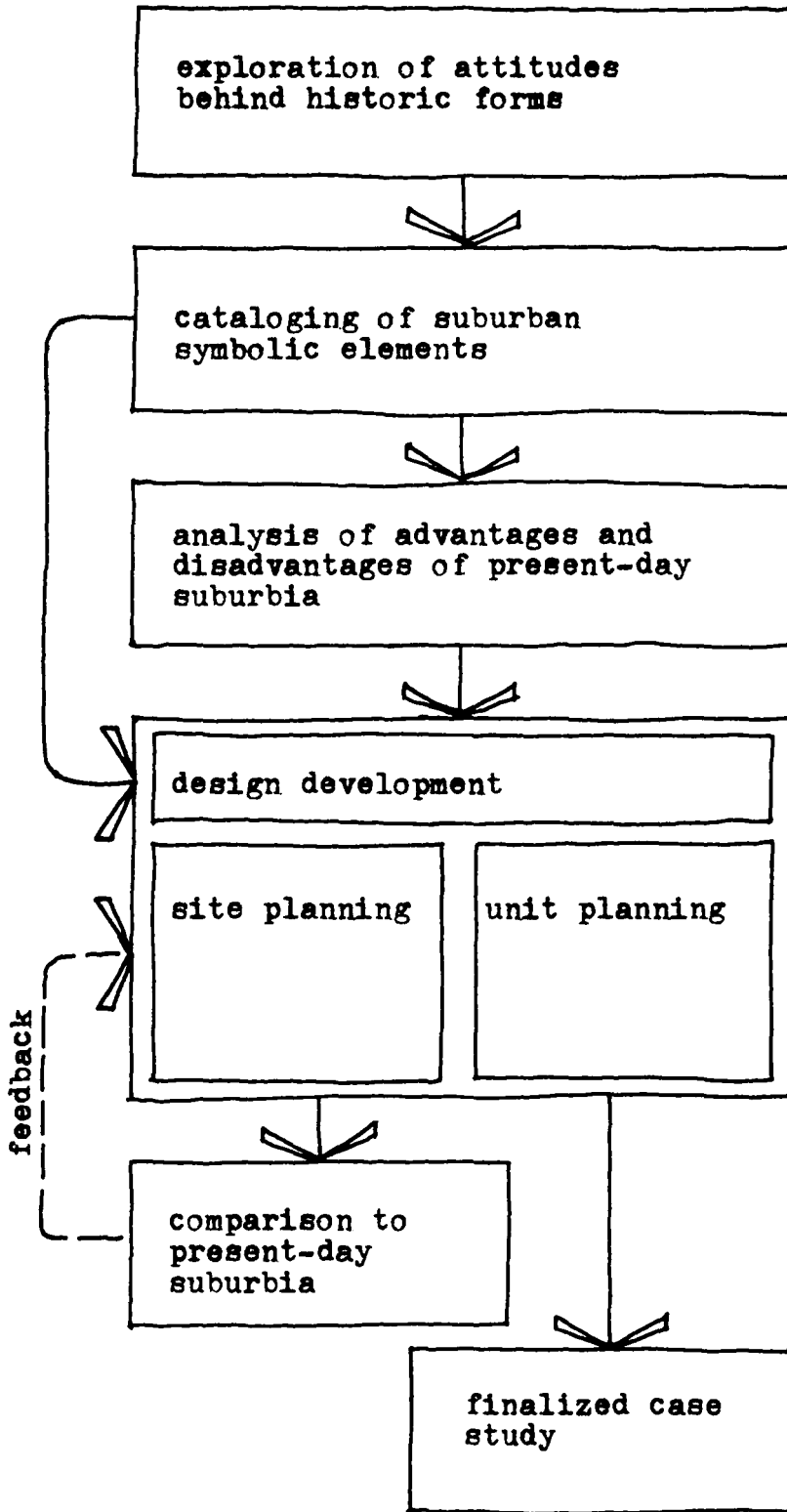


FIGURE 2. Development of the Design Case Study

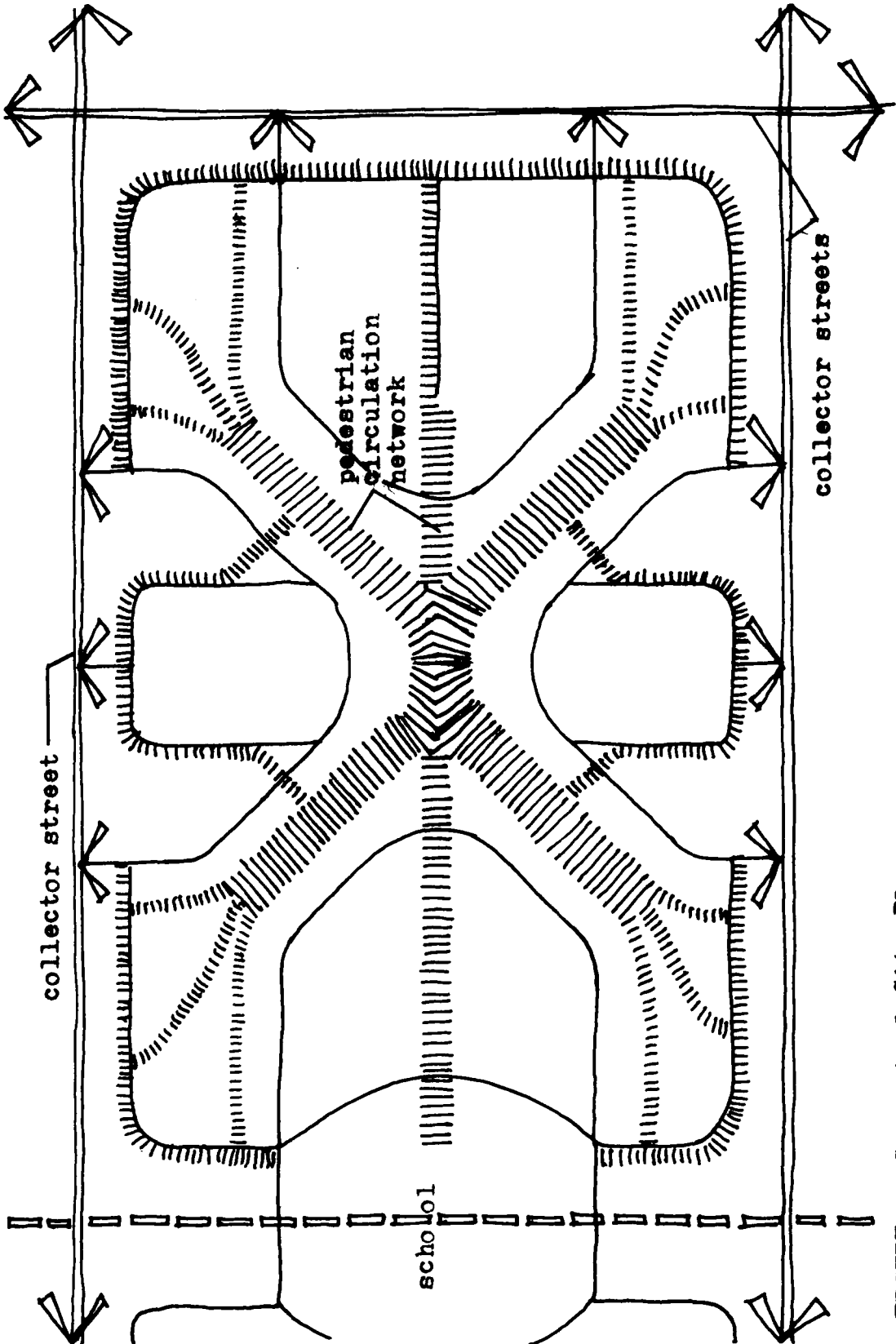


FIGURE 3. Conceptual Site Plan

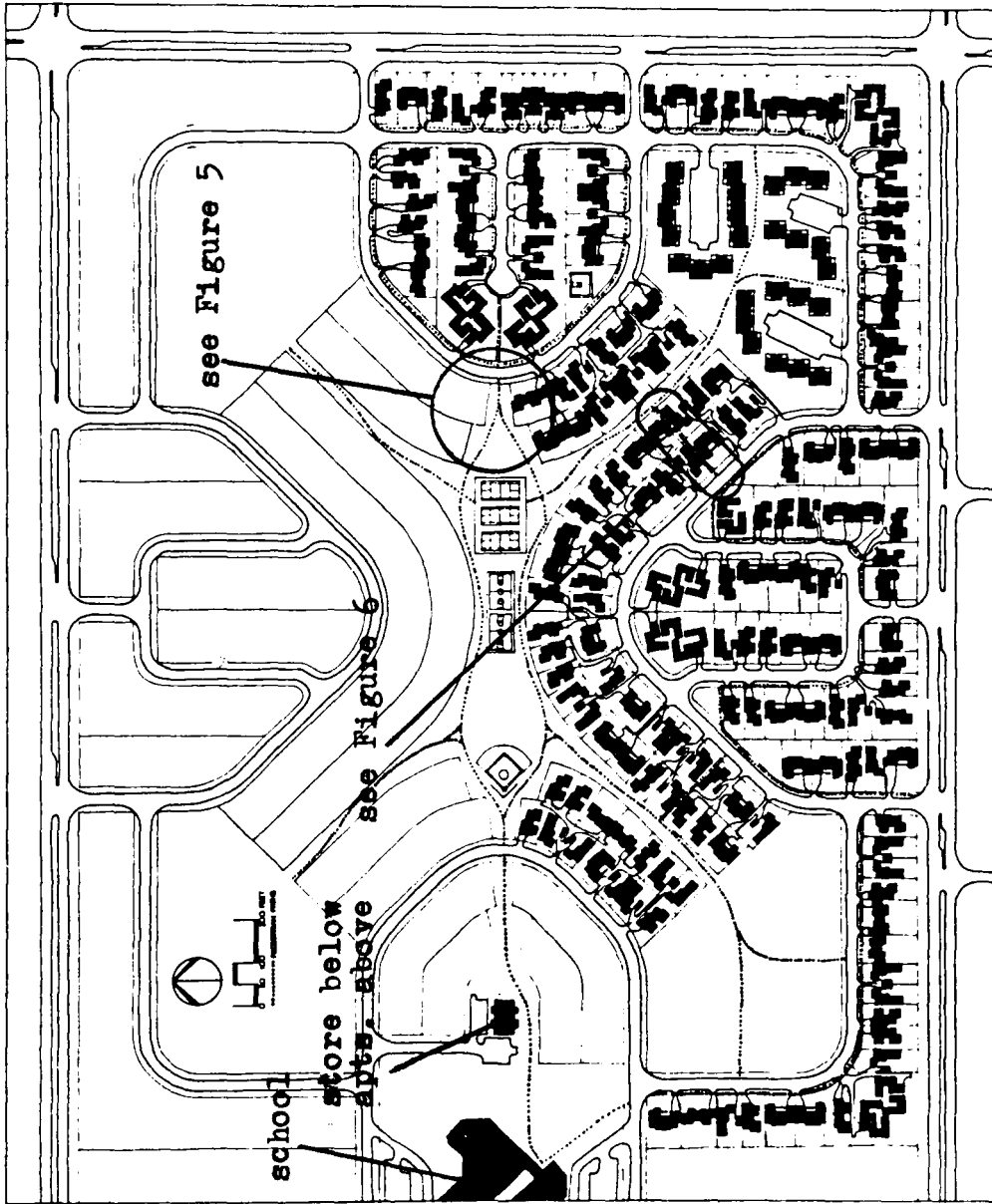


FIGURE 4. Prototypical Site Development

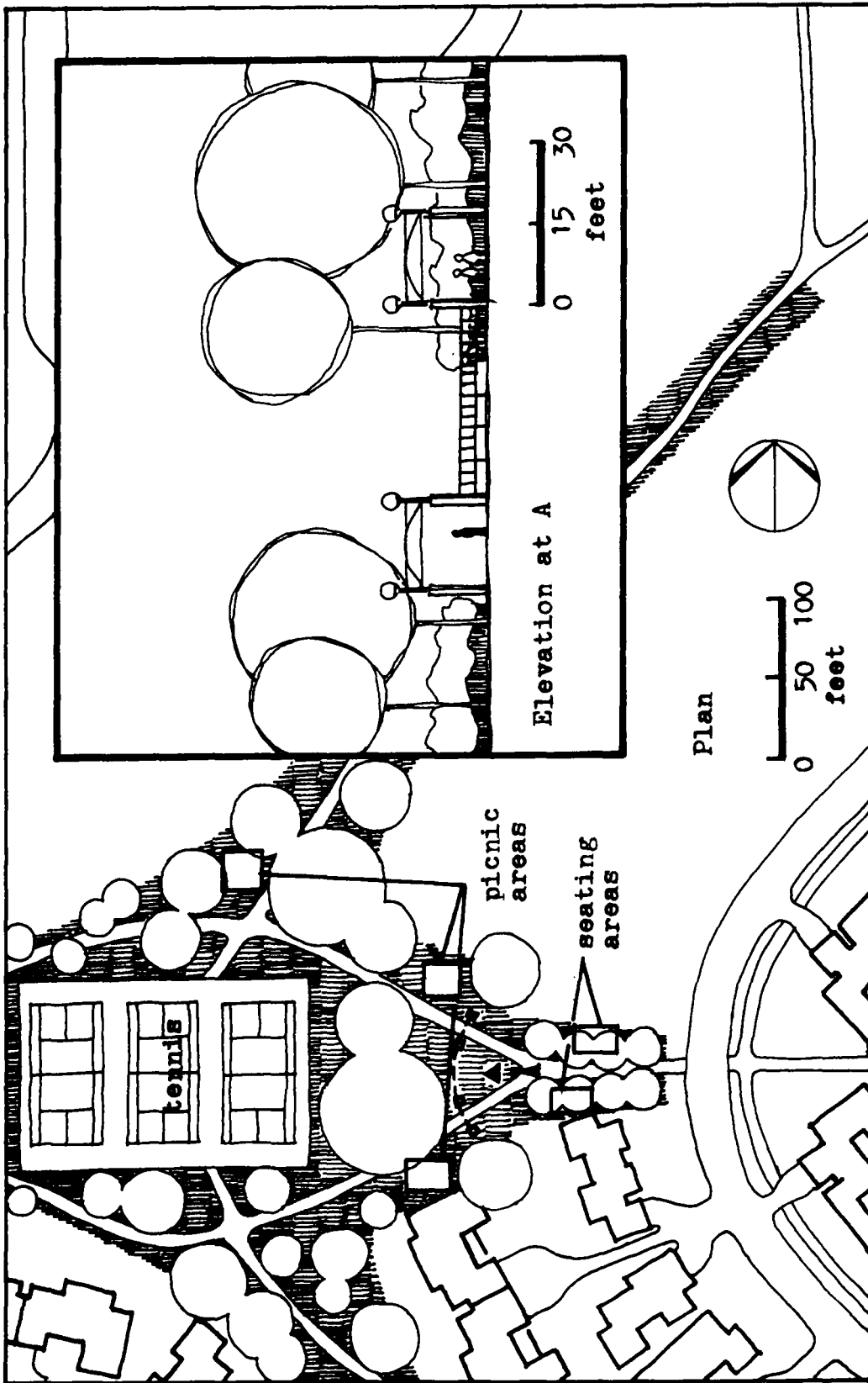


FIGURE 5. Major Entrance to Recreational Area

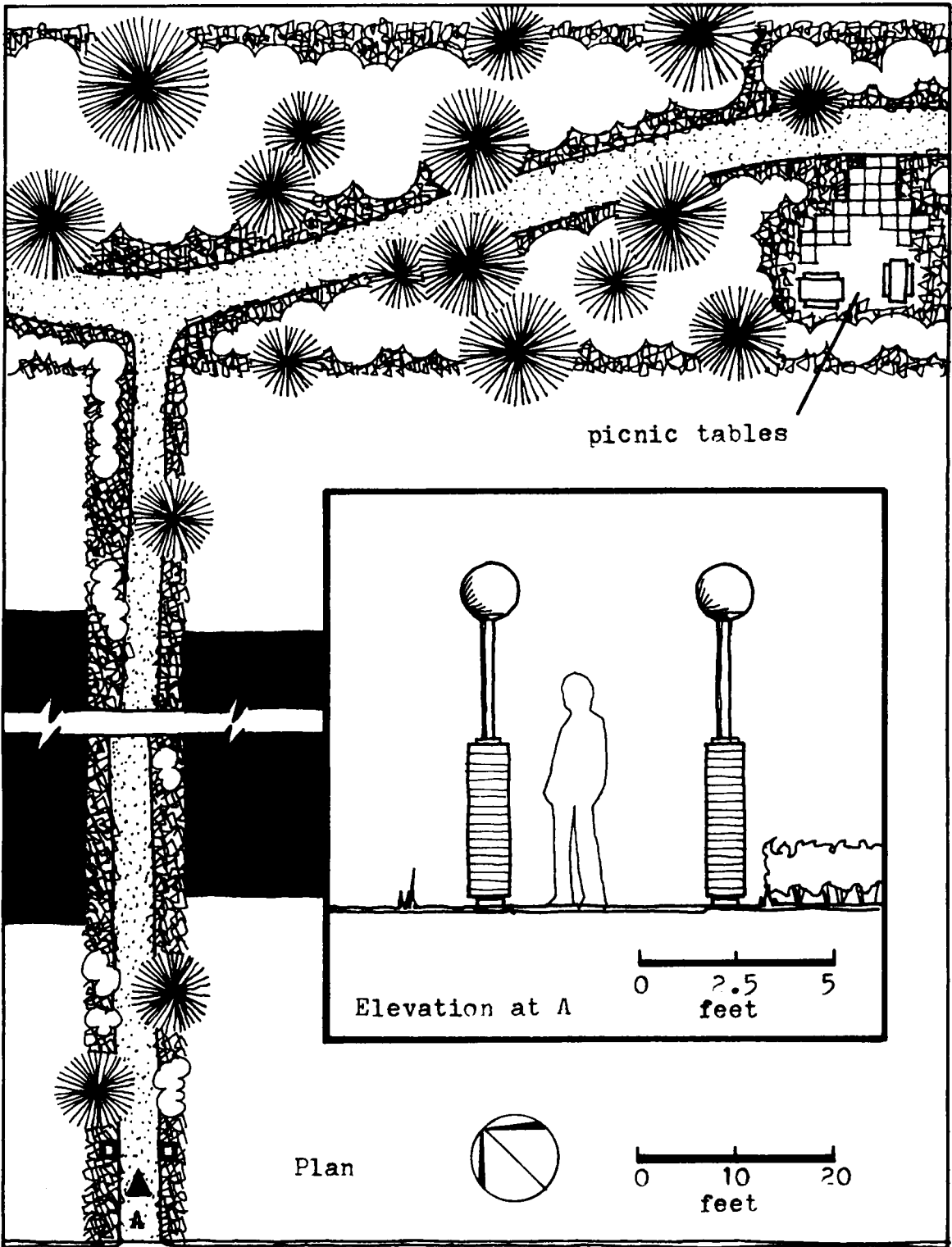


FIGURE 6. Minor Pedestrian Entrance to Recreational Area

of suburban settlements as well as a symbolic affirmation of domain, the most obvious means of reducing land coverage at the outset was to reduce the size of the lot. The typical suburban lot is generally 75 by 150 feet exclusive of rights-of-way, or approximately one-quarter acre. Much of this area is taken up by a large front yard required by zoning laws; another sizeable segment is taken up by sideyards, which, as mentioned in Table 3, are virtually useless.

My decision was to reduce the depth of the lot to 100 or 125 feet, depending on conditions, and to reduce the relative depth of the front yard. The front yard would still be large enough to allow its symbolic function of display (and to provide a transition from the street to the house), and the rear yard would be left relatively intact as the one large piece of usable space. Depending on the unit type, the sideyards either disappear altogether or are used as private outdoor space.

Furthermore, a double lot line configuration<sup>51</sup> was used in some areas. This allows a reduction in land coverage because of the elimination of extra roads and rights-of-way. It also allows driveways to be combined in order to give access to the two rows of units, producing a savings in the number of curb cuts required. The double lot line configuration also permits a sizeable number of

units to relate directly to the recreational space.

### Circulation Networks

The street network, while maintaining a strong order through the repetition of forms and relationships, achieves a sense of variety through the use of diagonal and curved streets, loops and cul-de-sacs, and mixed apartment and single-family uses. The four major loops extending towards the center form a residual X shape which allows a large number of units direct access to the recreational areas. The apartment clusters at the end of each arm of the X are arranged to allow pedestrian movement from the units on the periphery of the site through a semi-public space. Two of the loops have access through a large easement (see Figure 5) to the recreational space. The units in the other loops have collector sidewalks connected by means of narrow easements into the recreation spine (see Figure 6). In designing these entrances into the park, a sense of procession was created. The easement between the double lot line areas would be 35 feet wide, enough to allow for a winding trail with niches for picnic tables, benches, etc. The easement area would be differentiated from the rear yards of the units themselves by the use of a low-maintenance leafy ground cover. The pedestrian paths would be constructed as conventional concrete sidewalks in peripheral areas, but when they cross into the

X shape they would become gravel paths to discourage bicycle riding. The street network would afford a contained bicycle route; there is no need for additional bicycle paths through the recreational area--these should be left for the pedestrian.

### Other Advantages for the Pedestrian

The configuration of the X allows a pedestrian network with a central focus--the major recreational area in the center. The street network, while allowing free access to all parts of the neighborhood, has a definite tendency towards the edges of the site. As a result of this, there would be a strong community focus for the pedestrian. The neighborhood's higher density would work for the pedestrian as well, since more contacts would be available within a given walking area. Blocks would be kept short, which would increase the possibility of variety in walking routes and of chance encounters.

### Adaptability

Although the street layout imposes a strong pattern on the development, from a study of the possibilities of applying the road system to a real site, it can be demonstrated that it is quite adaptable. As long as the basic inward focus of the pedestrian network and the basic outward focus of the road network can be maintained, the changes required

around the edges matter little. The double lot line and single lot line configurations can be interchanged to allow roads to move farther apart or come closer together.

### Combinations of Neighborhood Units

Figure 7 shows how several of the neighborhood units could be combined and what could occur at their junctions. Each neighborhood would contain approximately 600 households, or about 2400 persons. Two such units would support an elementary school and nearby small store. Four units, comprising almost 10,000 persons, could support a small commercial center and secondary school, with arterial connectors into the central city.

### C. Unit Planning

#### Objectives

In the design of the units (see Figures 8 and 9), the major goals were: (1) a reduction of land coverage, (2) creation of viable outdoor private space, (3) attention to orientation and combinations of units, and (4) retention of basic suburban house forms. The implementation of these goals is discussed below. Further examination of land and energy savings appears in Tables 4-7.

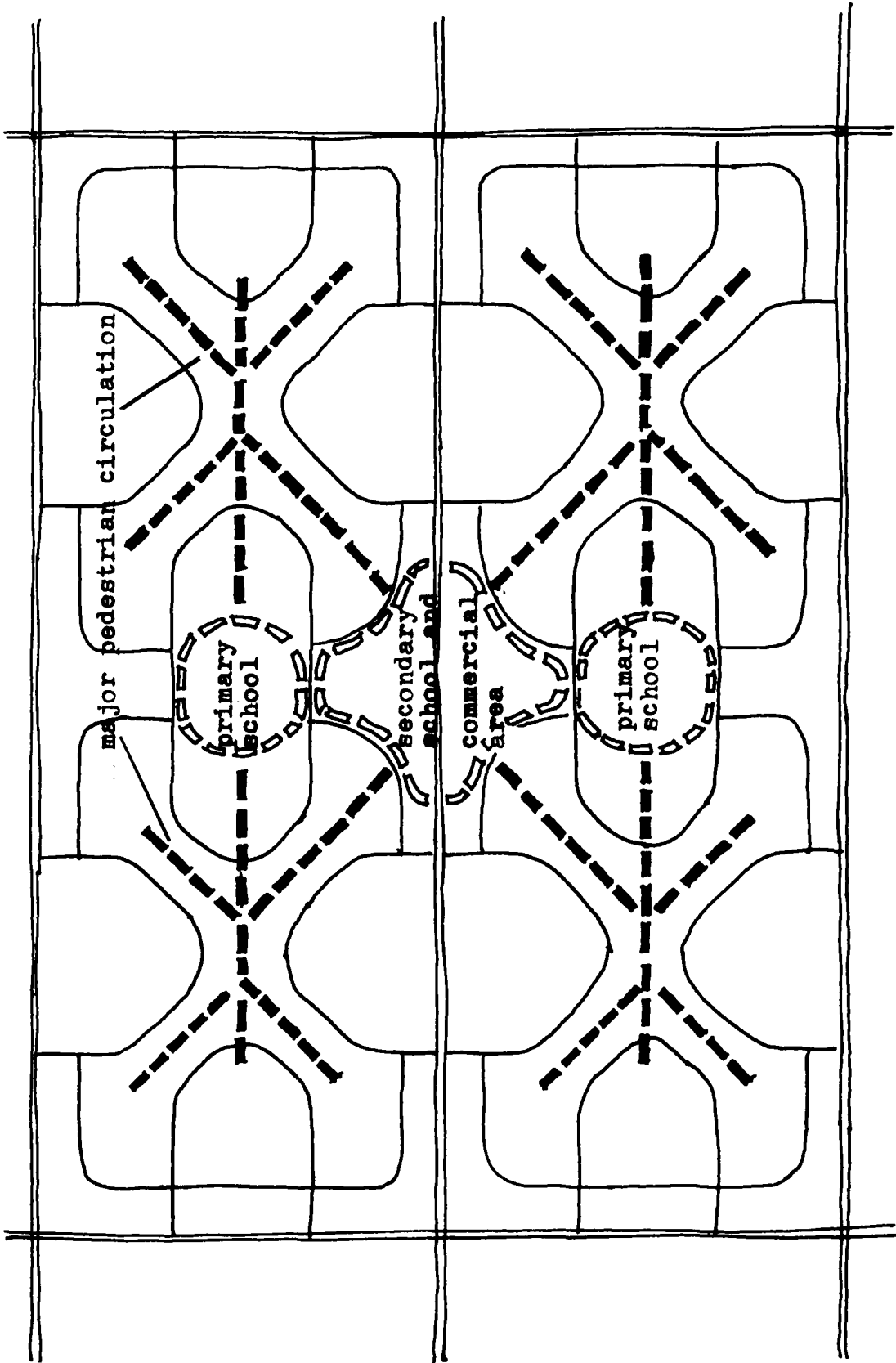


FIGURE 7. Combination of Neighborhood Units

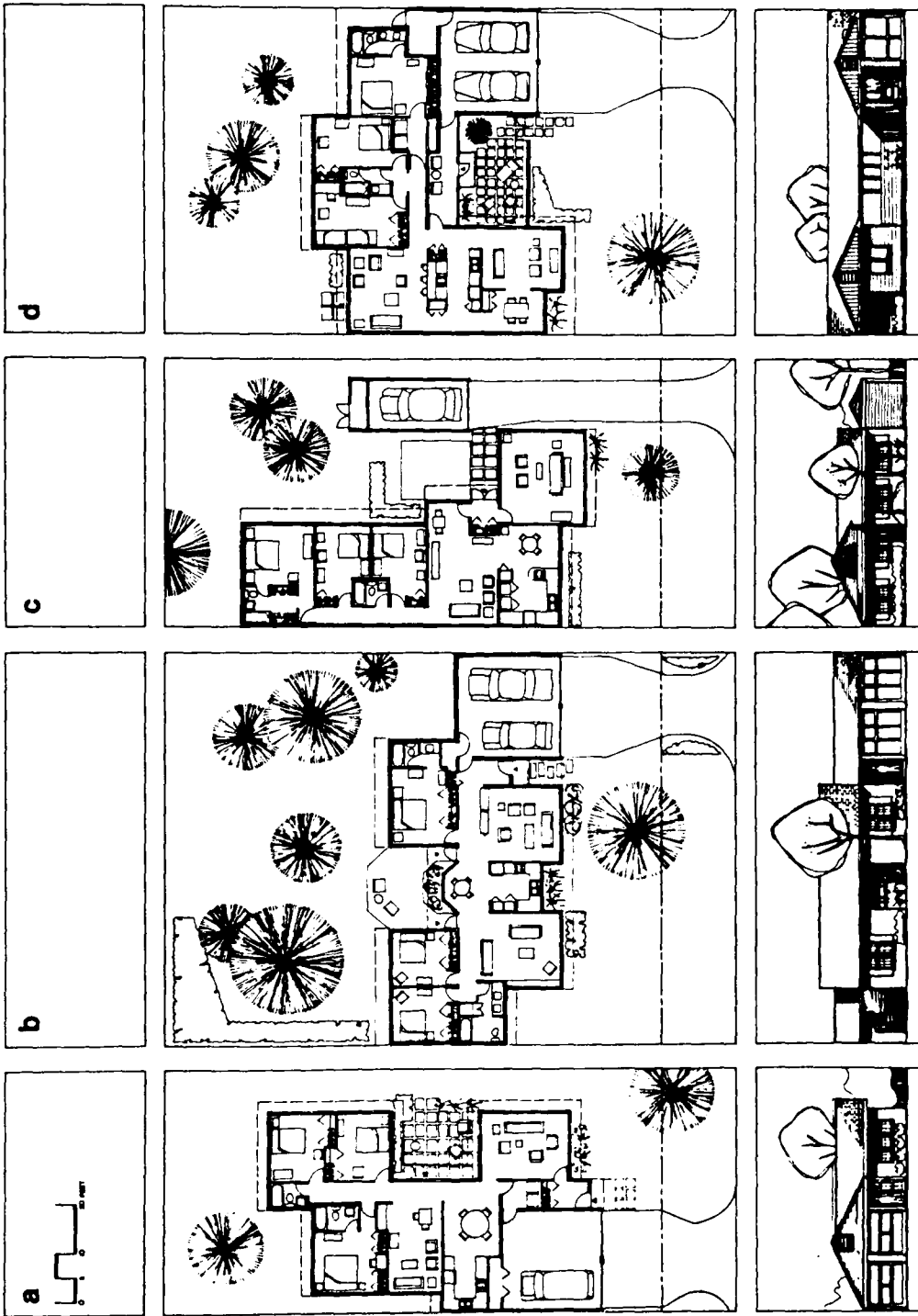


FIGURE 8. Unit Plans and Elevations

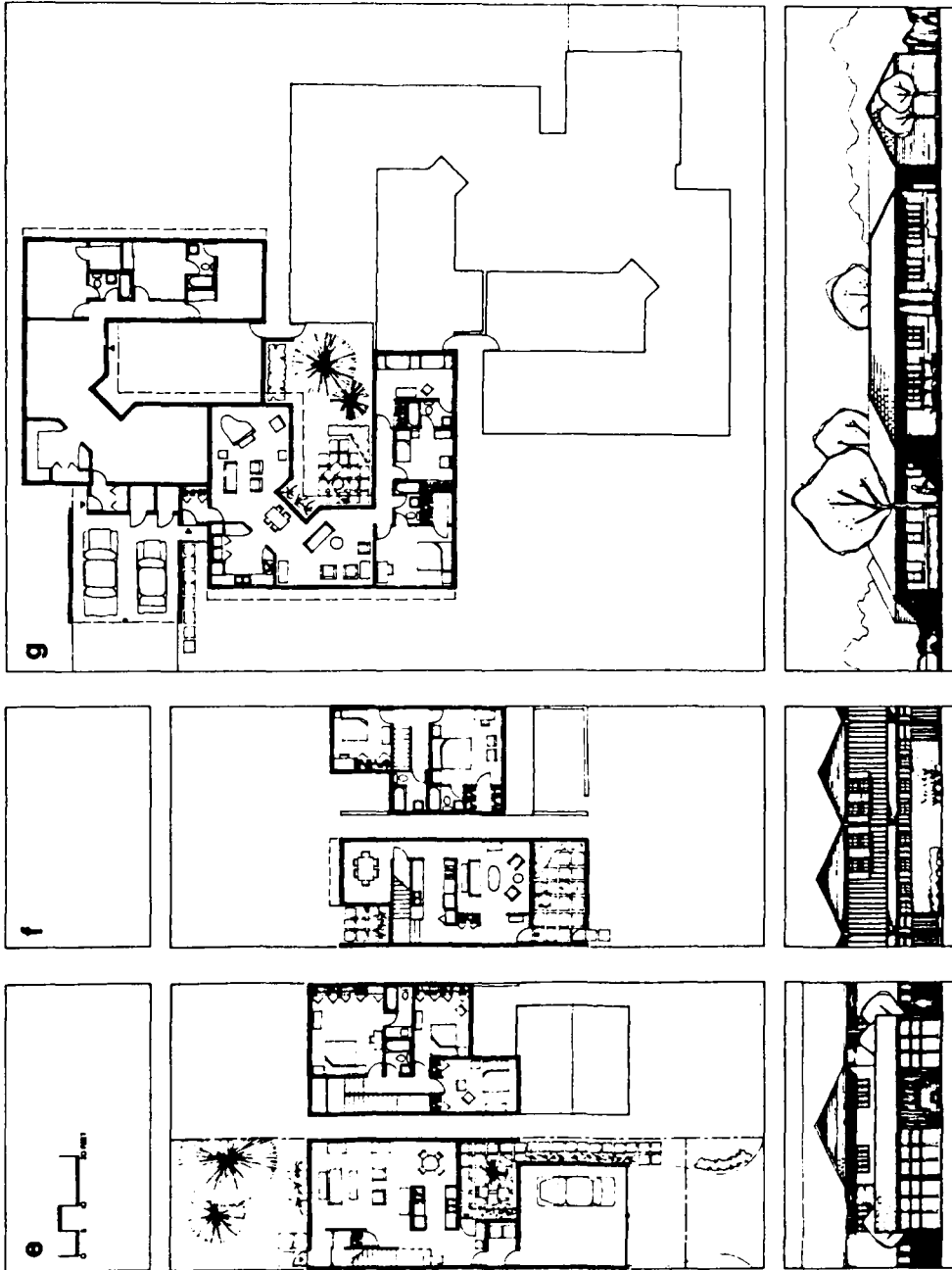


FIGURE 8. (Continued) Unit Plans and Elevations

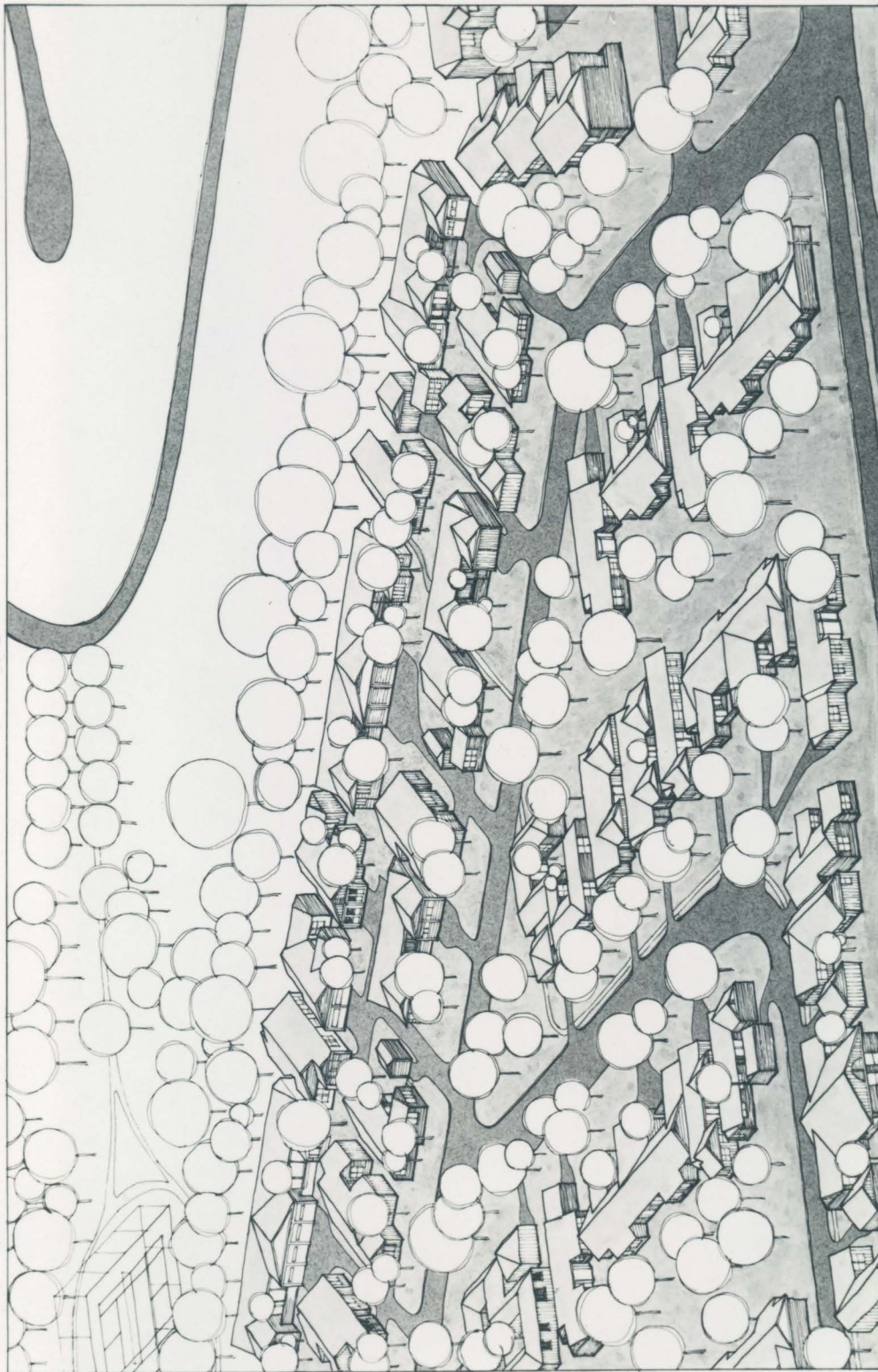


FIGURE 9. Axonometric of a Portion of the Site

### Zero Lot Lines

As mentioned earlier, lot sizes were decreased. This led immediately to a consideration of zero lot line configurations, which would allow one or more walls of the unit to fall on lot lines. In such a configuration a prime consideration would be the creation of private outdoor spaces within tighter confines. It would then be possible to take advantage of blind end walls in such situations, and to allow units to share walls, which would eliminate unusable sideyard space.

Courtyard spaces were an obvious answer to the problem of creating private space. However, since a courtyard space should receive sun and the street network necessarily required a variety of orientations for the units, the units were planned to allow courtyard space in various locations around the house: on the front, at the rear, or on either side. This would assure variety on the street and would allow for better orientation of each unit than is possible in tract building where the same unit is placed in every possible orientation.

### Orientation and Combination

Orientation is of course vital to energy conservation. There has been an attempt in each case to orient the large glazed area of the courtyard so that it would receive

winter sun. Overhangs would be wider than is typical in suburbia, and all windows which receive direct sun in summer would be shaded. While the modulation of the house forms to create the private outdoor spaces would increase the perimeter area of the units, the combination of units could decrease the net perimeter area per unit. The savings resulting from these combinations was not exploited to the ultimate degree in the site planning because I felt that the effect could become too repetitive, even though a change of materials could be used to differentiate between units which were joined. Instead, there would be a variation among units which have their long axes parallel and perpendicular to the street. Some unit types would be most effective when used singly to allow a break between different unit types. Still, approximately 40% of the non-apartment units shown in the site plan would be combined with other units.

### Constraints

In all cases, the design of the units was constrained somewhat by my desire to retain an overall shape which would be relatively simple and easy to construct in wood frame with a conventional pitched or hip roof, the roof form being one of the most salient features of suburban houses (see Figure 11). Also important was a desire to present a "front" to the street, regardless of the position of the

outdoor living area. Frontality is another of the predominant suburban characteristics I wished to preserve.

#### D. Overall Development

Tables 4-7 list some of the major features of the total development. Figures 10 and 11 further illustrate how symbolism and energy-conserving devices could be included in the design of the units. Tables 8-10 show a comparison between the suburban neighborhood developed in this thesis and a typical tract builder's subdivision.

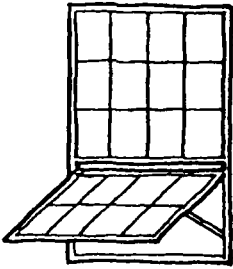
#### Compromises

The site plan and unit plans represent an attempt to work at two ends of the design scale to produce a compatible system for the whole, while providing variety and amenity at a higher than usual density. To achieve this, two compromises were fundamental to the design.

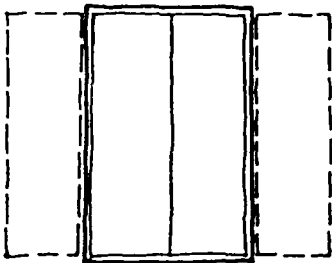
At the large scale, the site planning represents a compromise between the garden city or planned unit development model, with its emphasis on communal spaces, and the developer or tract builder's layout, with its emphasis on separate lots. The site plan developed in the case study retains the separate lots but makes them smaller by combining or relocating the units within the lots. It retains much of the communal space of the

TABLE 4. Applicable Energy-Conserving Elements

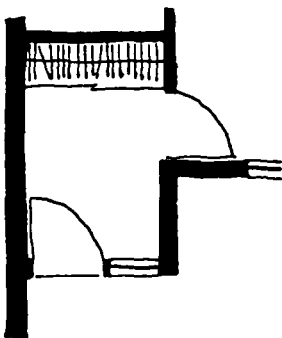
ELEMENT	EXPLANATION
Reduction of infiltration (see Figure 10)	Higher-quality windows, double-glazed; Airlock at major entrances
Operable insulated shutters (see Figure 10)	To retain heat on north exposures and at night
Attention to orientation and sun-shading (see Table 10)	Units work best within a particular range of orientation
Higher net density (see Table 9)	Overall effect of reducing energy used in transit for commuters, mailmen, service vehicles
	Site plan requires less roadway per unit, less infrastructure per unit (reduces transmission losses and length of trunk lines)
<u>OTHER TYPICAL ELEMENTS</u>	
Insulation	At least 6" in walls
No large glass areas	Except where used for passive solar collection



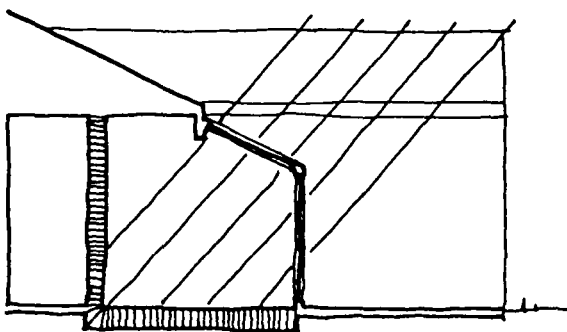
Windows with fixed sash and operable awning unit permit controlled ventilation; much less infiltration due to area of fixed sash



Operable insulated shutters (folding or sliding) could increase the R-value of the window area to almost the level of the walls



Airlocks at major entrances help to control infiltration



Courtyard areas have potential as passive solar collectors if floor or wall is used as thermal mass

FIGURE 10. Illustration of Some Energy-Conserving Devices

TABLE 5. Applicable Land-Conserving Devices

ELEMENT	EXPLANATION
Shared walls Zero lot lines	Approximately 25% reduction in lot width with actual increase in visual privacy
Double lot line	Provides choice of unit placement; reduces amount of paving and curb cuts needed; allows road network to adapt to contours more easily
Mixed apartment and single-family uses	Further overall reduction in land coverage, does not stigmatize apartment dwellers; possibly makes apartments more desirable for families with children; can increase profitability of development

TABLE 6. Human Considerations

ELEMENT	EXPLANATION
Individual ownership	Sense of personal security; still a good investment
Recreation areas	Higher net density means more people and more recreation space needed; also, partial compensation for loss of lot size; provides spatial variety
Pedestrian network	Gives access to all parts of neighborhood with few street crossings
Short blocks or pedestrian pass-throughs	Increases possibility of chance contacts; variety in walking routes
Different unit types	Variety, individuality
Private outdoor space	Affirmation of domain
Zoning of public/private/family spaces within units	Without undue separation which limits flexibility, change and growth

TABLE 7. Applicable Symbolic Elements

ELEMENT	EXPLANATION
Pitched roofs	Basic to "home" image; provides attic space; can accept solar panels
Frontal orientation	Ties units and occupants to the larger community; easy access to circulation
Front lawns	Buffer between street and house; public expression of private self through landscaping, objects, etc.
Garages	Acknowledges the importance of the car
Windows with shutters	Energy-conserving device which makes exterior look less barren; reinforces horizontal proportions
Private outdoor space	Affluence; outdoor living; domain
Central recreation	Community as well as amenity; provides spatial reference point

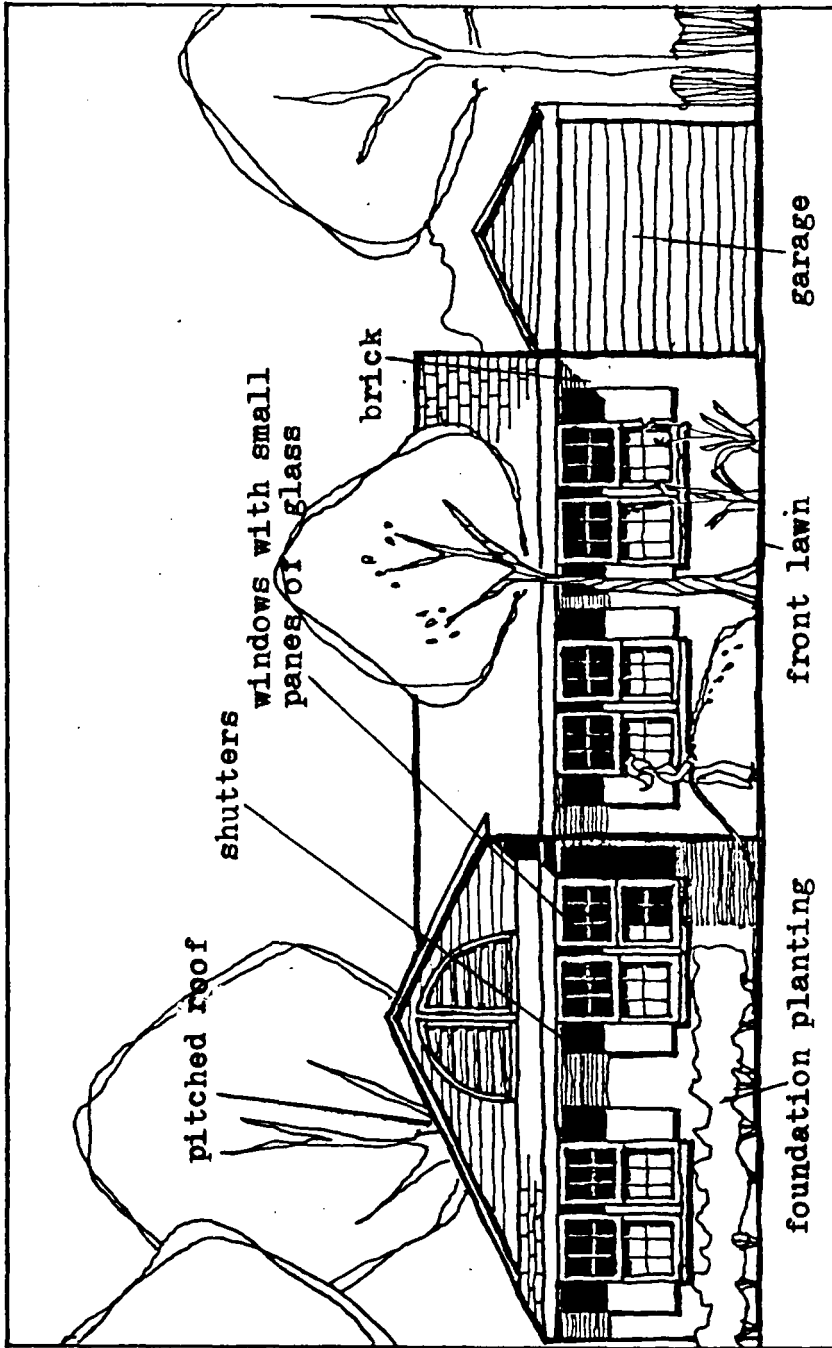


FIGURE 11. Suburban Symbolism as Applied to New Units

TABLE 8. Modifications of the Suburban Pattern

Features of Suburbia Retained

ELEMENT	EXPLANATION
Separate lots	Establishes domain without ambiguity; sense of ownership, security, privacy
Garages (as opposed to shared parking facilities)	Protection of car (cold climates); privacy of access to house; appropriate joint between units
Basic house form	Easy to construct in wood frame; familiar image; pitched roof accepts solar panels if desired
Basic room types	Marketability (i.e., sleeping alcoves with shared storage may be more efficient, but the trend in housing has been towards separate bedrooms for years; changes that drastic not yet needed)
Front lawn	See Table 7
Primarily frontal orientation to street	See Table 7

TABLE 8. (Continued) Modifications of the Suburban Pattern

Features of Suburbia Discarded

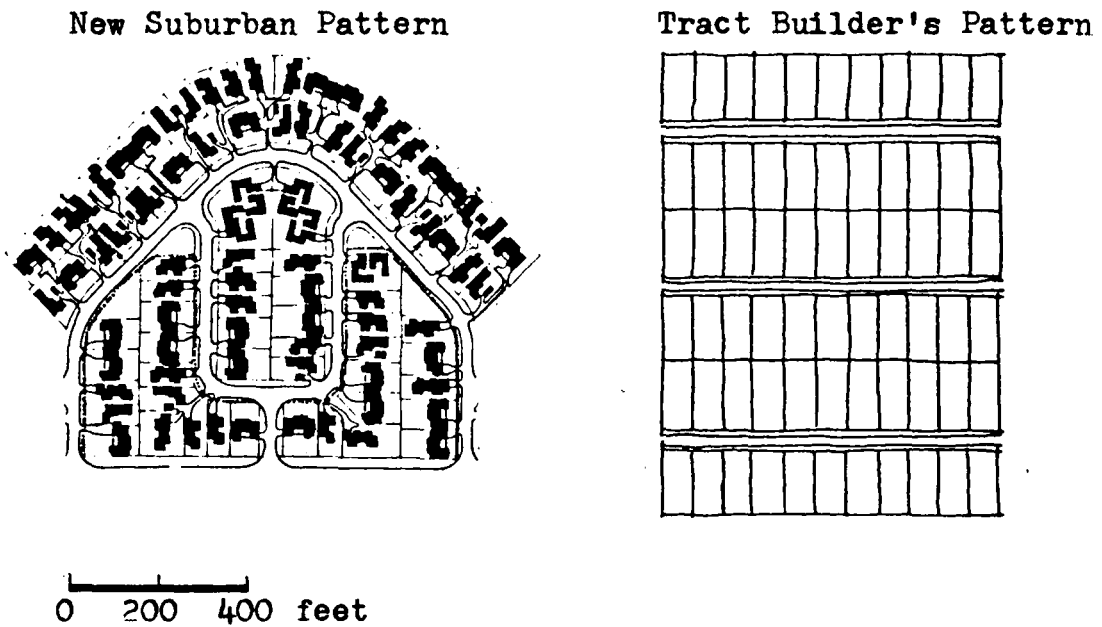
ELEMENT	EXPLANATION
Completely detached units	Separation not needed to establish separateness; saves land; can <u>increase</u> visual privacy
Separate ceremonial access to house (in most cases)	Reduces circulation space; entrance can usually be handled without need for two separate paths; allows better control over one entrance

TABLE 8. (Continued) Modifications of the Suburban Pattern

Features Not Usually Found in Suburbia

ELEMENT	EXPLANATION
Private outdoor space	Attached units make it more possible without reliance on landscape devices
Attention to combination of units	Units not conceived as separate entities; more privacy can be assured
Double lot line	See Table 5

TABLE 9. Land Coverage Comparison



Comparative Statistics

18.5 acres.....	Area.....	18.5 acres
95.....	Dwelling Units.....	66
5.14.....	Units per Acre.....	3.55
695 sq. ft. ....	Roadway per Unit.....	888 sq. ft.

New Suburban Pattern Statistics

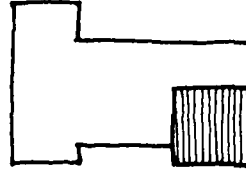
Size of Neighborhood Unit.....	112 acres
Dwelling Units.....	±600
Overall Density.....	5.35 DU/acre
Increase in Density over Tract Pattern.....	50.7%

TABLE 10. Comparison of Unit Types

Tract Builder's Units



Type A



Type B



Garage

1600 sq. ft. ....Living Area.....1500 sq. ft.

1575 sq. ft. ....Perimeter Area.....1490 sq. ft.

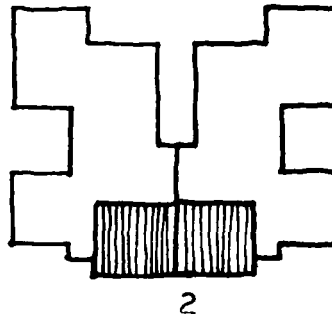
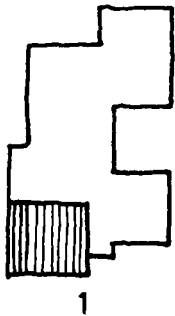
11,250 sq. ft. ....Lot Size.....11, 250 sq.ft.


No defined outdoor spaces

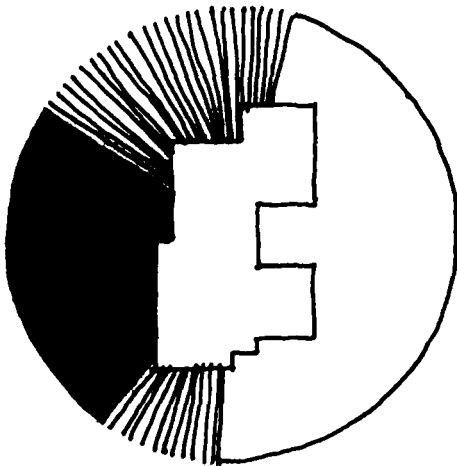
No particular orientation

TABLE 10. (Continued) Comparison of Unit Types  
 New Suburban Pattern Unit Type A

Combinations




 Garage



Orientation

 Preferred direction of North

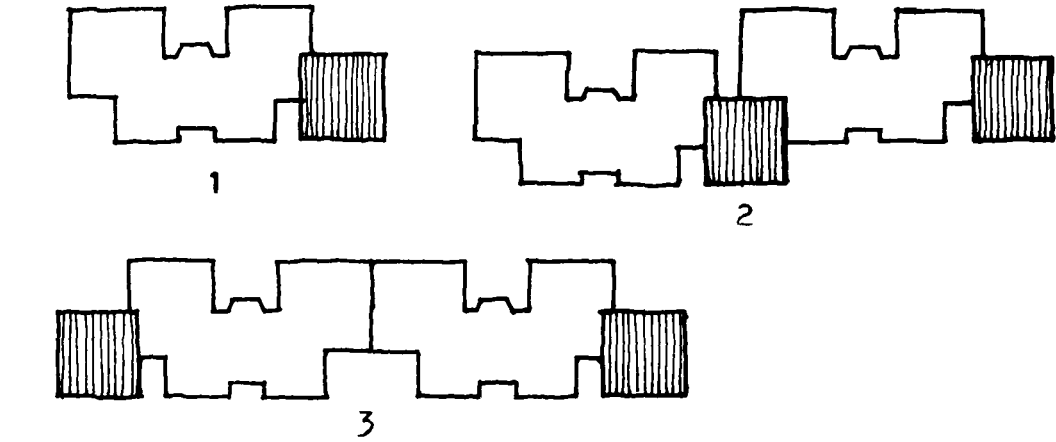
 Acceptable direction of North

Statistics

Living Area.....	1655 sq. ft.
Perimeter Area Option 1.....	2000 sq. ft.
Perimeter Area Option 2.....	1880 sq. ft.
Average Lot Size.....	5625 sq. ft.


TABLE 10. (Continued) Comparison of Unit Types  
 New Suburban Pattern Unit Type B


Combinations

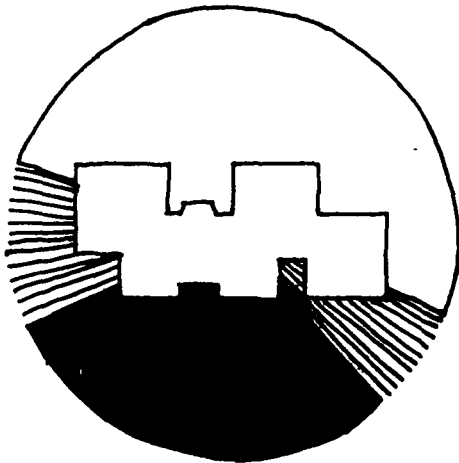


 Garage

Orientation

 Preferred direction of North

 Acceptable direction of North

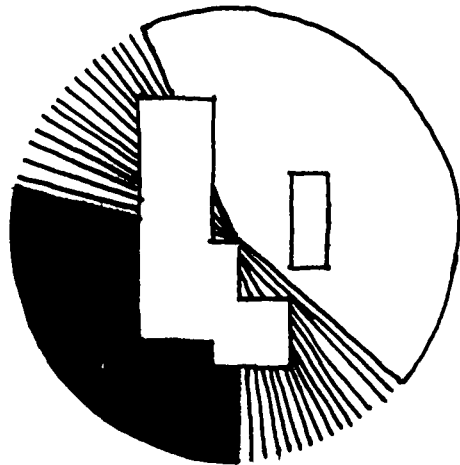
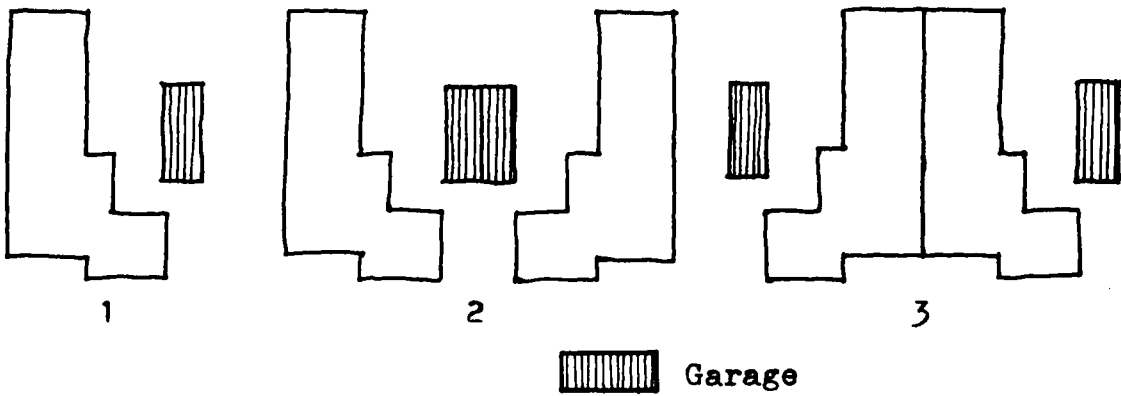


Statistics



Living Area.....	1570 sq. ft.
Perimeter Area Option 1.....	2105 sq. ft.
Perimeter Area Option 2.....	1990 sq. ft.
Perimeter Area Option 3.....	1890 sq. ft.
Average Lot Size.....	7000 sq. ft.

TABLE 10. (Continued) Comparison of Unit Types  
 New Suburban Pattern Unit Type C

Combinations



Orientation

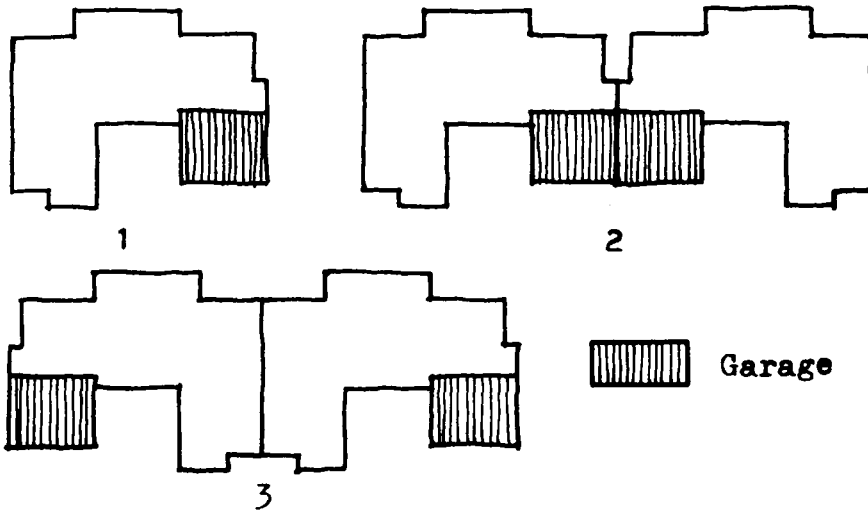
-  Preferred direction of North
-  Acceptable direction of North

Statistics

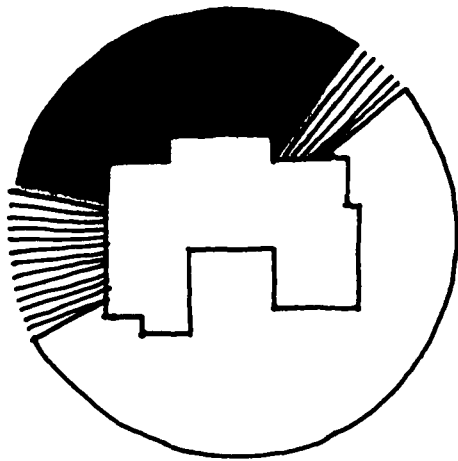
Living Area.....	1690 sq. ft.
Perimeter Area Option 1.....	1980 sq. ft.
Perimeter Area Option 2.....	1980 sq. ft.
Perimeter Area Option 3.....	1405 sq. ft.
Average Lot Size.....	5625 sq. ft.



TABLE 10. (Continued) Comparison of Unit Types  
 New Suburban Pattern Unit Type D

Combinations



Orientation



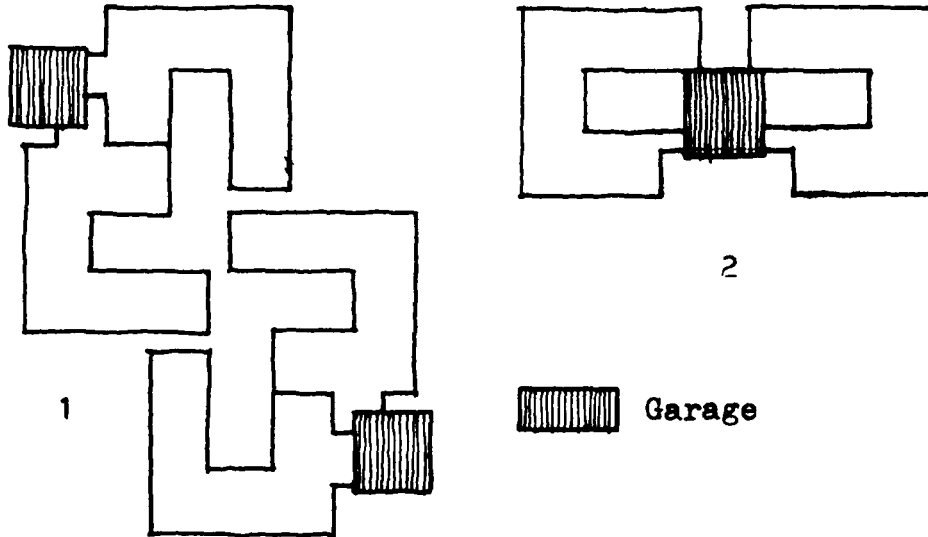
-  Preferred direction of North
-  Acceptable direction of North

Statistics

Living Area.....	1690 sq. ft.
Perimeter Area Option 1.....	2035 sq. ft.
Perimeter Area Option 2.....	2035 sq. ft.
Perimeter Area Option 3.....	1675 sq. ft.
Average Lot Size.....	7425 sq. ft.

TABLE 10. (Continued) Comparison of Unit Types  
New Suburban Pattern Type G

Combinations



Orientation

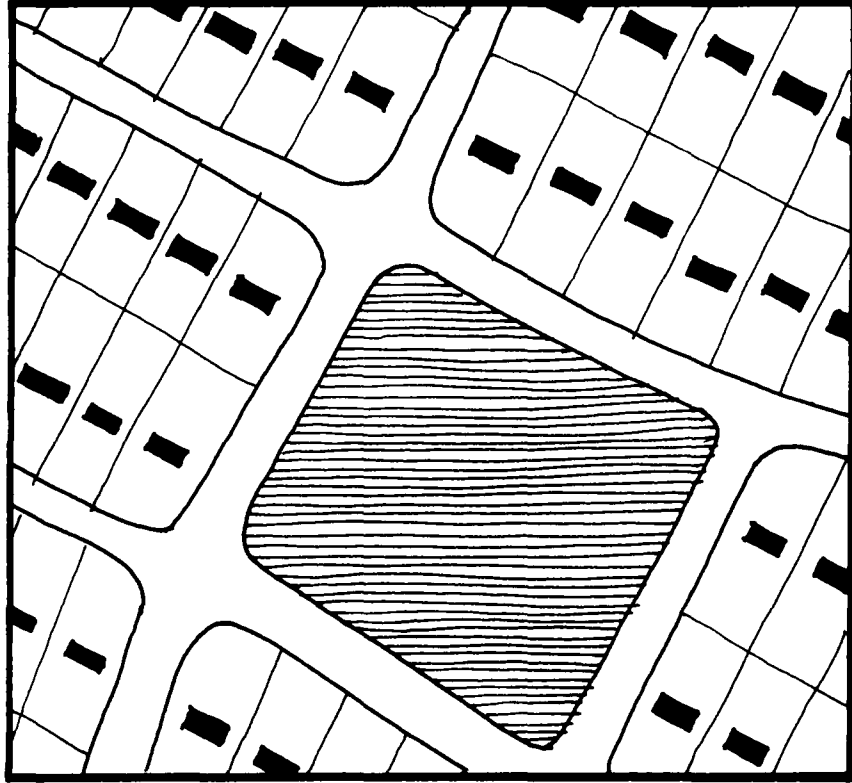
Each unit in cluster would have an overhang configuration suited to its particular orientation. The walls of the courtyards would block low sun from the east and west.

Statistics

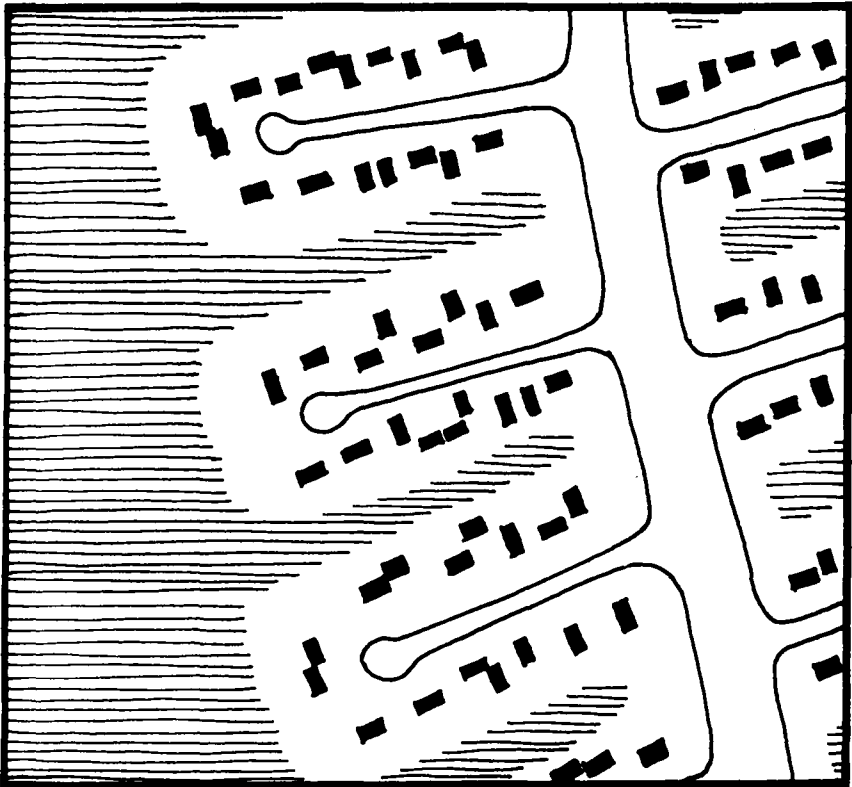
Living Area.....	1570 sq. ft.
Perimeter Area Option 1.....	1915 sq. ft.
Perimeter Area Option 2.....	2060 sq. ft.
Average Lot Size (per unit).....	5500 sq. ft.

garden city plan but simplifies it, eliminating the many fingers of ambiguous green space between clusters of housing (see Figure 12). This type of pathway only occurs in my design in the arms of the central X shape, where there would be enough pedestrian movement to justify its inclusion. There is a separation of pedestrian and vehicular movement, but not to the extent of the garden city model. There are a few places in my design where street crossings would be required; I do not feel that the streets would be heavily traveled enough to require complete elimination of pedestrian crossings at grade. My design also retains the generally frontal orientation of units to the street which is typical of tract housing, but entrances to the houses are kept close to the garages so that two completely separate paths for family and visitors within the units are eliminated.

The other compromise, mentioned earlier, is between the suburbanite and the designer. Through my design, the suburbanite's desire for a familiar symbolic language is realized, as well as his desire for some choice in unit types and configurations on the lot. The designer, in turn, is able to realize his desire to make the planning of the development more efficient in terms of land use. However, the suburbanite must relinquish the appearance



The Tract Builder's Model



The Garden City Model

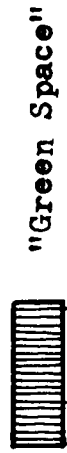


FIGURE 12. The Garden City Model vs. The Tract Builder's Model

of a freestanding house and the designer must relinquish some of his control over the forms of the units and their locations in terms of each other. In this way, the symbolic language may be realized in a denser context.

#### IV. CONCLUSIONS

The previously stated purpose of this thesis is to develop a new pattern of suburban settlement which responds to the desires of the mass housing market and, at the same time, reduces the high level of land and energy consumption which is inherent in the present pattern(s) of suburban settlement.

An examination of the desires of the housing market led to an exploration of the symbols which are so prominent in suburbia, and to a concern for preserving this suburban symbolism within a context of saving land and energy.

The second section of the thesis outlines the development of American domestic architecture in terms of the values of society. The primary modes of thought in this development have been: medieval, based on non-intervention in God's order; classical, which upheld the virtues of rational thinking; Victorian, a return to the forms of previous periods by means of picturesque eclecticism.

The importance of symbolism, both to our perception of the built environment and to the form of suburbia, is discussed. A means for classifying the symbolic elements of suburbia is illustrated.

The third section, a design case study, shows how the concerns for symbolism, land and energy are implemented in physical form. The case study focuses on the two ends of the design scale, site planning and unit planning. By reducing lot sizes and combining many units, an increase in density of approximately 50% is achieved, as compared to a tract builder's neighborhood. The creation of the new suburban pattern is discussed in terms of fundamental compromises, between different site-planning models and between the suburbanite and the designer.

As land becomes more scarce and expensive, the value of conserving land will become more apparent to the consumer. The importance of design and designers, in making land use more efficient and in establishing standards for residential development, should be affirmed. However, as long as housing is privately owned, it is essential that a degree of individualization and choice is available to the consumer, perhaps even more so as people come to live closer together. Thus, the designer should in turn affirm the desires of suburbanites to retain a symbolic language which suits their expressive purposes.

This thesis has demonstrated how these concerns could be integrated--conceptually. To develop such a scheme in the real world would first require an arousal

of interest in suburban planning among designers. If this could be done, however, it could develop into a means for designers to display the most positive aspect of their skills--problem-solving, not monument-building.

It would not be an easy problem. It is obvious that a development such as such as the one presented in the design case study would require attention to each type of unit and to the ways it could be combined with other units. A large number of different units would have to be produced to satisfy the consumer, yet all units would have to work within the constraints of the site plan. A flexible framework which would allow for the input of many designers would have to be developed, in order to avoid a lack of visual variety. Within a limited context I was able to achieve a degree of variety in unit forms and layouts. Transposing this experience into the real world would be a much greater challenge.

## ENDNOTES

- <sup>1</sup> "Housing: It's Outasight," Time, 12 Sept. 1977 p. 52.
- <sup>2</sup> Ibid., p. 57.
- <sup>3</sup> Robert Venturi, Denise Scott Brown and Steven Izenour, Learning From Las Vegas (Cambridge, MIT Press, 1973), p. 106.
- <sup>4</sup> Herbert Gans, People and Plans (New York, Basic Books, Inc., 1968), pp. 153-4.
- <sup>5</sup> Alan Gowans, Images of American Living (Philadelphia, J. B. Lipincott Co., 1964), p. 110
- <sup>6</sup> Ibid., p. 111.
- <sup>7</sup> Wayne Andrews, Architecture, Ambition and Americans (New York, Free Press, 1964), p. 3.
- <sup>8</sup> Ibid., p. 40.
- <sup>9</sup> Vincent Scully, American Architecture and Urbanism (New York, Praeger Publishers, 1969), p. 29.
- <sup>10</sup> Gowans, p. 115.
- <sup>11</sup> Ibid., p. 117.
- <sup>12</sup> Scully, p. 29.
- <sup>13</sup> Ibid., p. 30.
- <sup>14</sup> Ibid., p. 30.
- <sup>15</sup> Ibid., p. 78.
- <sup>16</sup> Gowans, p. 116.
- <sup>17</sup> Herbert W. Congdon, Early American Homes for Today (Rutland, Vt., Charles E. Tuttle Co., 1963), p. 80.
- <sup>18</sup> Gowans, p. 209.
- <sup>19</sup> Ibid., pp. 287-8.
- <sup>20</sup> Ibid., p. 287.

- 21 Ibid., p. 288.
- 22 Scully, p. 88.
- 23 Gowans, p. 288.
- 24 Scully, p. 89.
- 25 J. M. Richards, The Castles on the Ground (London, John Murray, 1973), p. 40.
- 26 Scully, p. 87.
- 27 Ibid., p. 88.
- 28 Ibid., p. 87.
- 29 Ibid., p. 90.
- 30 Ibid., p. 35.
- 31 Gowans, p. 288.
- 32 William Curtis, "Berthold Lubetkin," Architectural Association Quarterly, Vol. 8, No. 3, 1976, p. 39.
- 33 Peter F. Smith, "Transactions between Mind and Urban Environment," Architectural Design, Vol. XLIII, Feb. 1973, p. 78.
- 34 Charles Jencks, The Language of Post-Modern Architecture (New York, Rizzoli International Pub., Inc., 1977), p. 19.
- 35 Peter F. Smith, "Symbolic Meaning in Contemporary Cities," RIBA Journal, Vol. 80, Sept. 1973, p. 438.
- 36 Ibid., p. 437
- 37 Ibid., p. 440.
- 38 Jencks, p. 26.
- 39 Andrews, p. 252.
- 40 Milka Bliznakov, "The Constructivist Movement in Architecture," Soviet Union, Vol. 3, Part 2, 1976, pp. 208-232.
- 41 Jencks, p. 62.

- 42 Curtis, p. 33.
- 43 Jencks, p. 77.
- 44 Ibid., p. 37.
- 45 Ibid., p. 37.
- 46 Richards, p. 2.
- 47 Robert Venturi et al., "Signs of Life," Architectural Design, Vol. XLVI, Aug. 1976, p. 497.
- 48 "America's Changing Profile," U. S. News and World Report, 22 May 1978, p. 56.
- 49 Richards, p. 63.
- 50 Jencks, p. 63.
- 51 Thomas Adams, The Design of Residential Areas (New York, Arno Press, 1974), p. 183

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# NEW PATTERNS OF SUBURBAN SETTLEMENT

by

Michael Arnold Lehman

## (ABSTRACT)

This study includes an examination of the attitudes which have shaped American domestic architecture, and an explanation of how the symbolic language of American suburban areas is important to the design of suburban residential development.

A design case study is included, which illustrates how a concern for the preservation of the symbolic content of suburban form can be integrated with a desire to reduce the wasteful land coverage of the typical suburban settlement, in order to produce a new suburban pattern.

Selected drawings and tables are used to illustrate the text, and to help explain the rationale behind the design case study.