

Phenomena and Practices of Dwelling: Suburban Alternatives

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MOVE-UP HOME AT STARTER HOME PRICE!!!

Large family home with sparkling curb appeal. 3 car garage, secluded backyard. Spacious 3 bedroom, 2 baths, updated kitchen, decorator window coverings and wall coverings, neutral colors. Spa tub, formal dining, cozy breakfast nook. Great location.

- a local realtor, almost any suburb

THE SUBURBS

The word "suburb" evokes an image of rows of evenly spaced houses, each with a two-car garage and yard. The organization of a suburban residential environment is characterized by a horizontal adjacency of subdivided land parcels along a street. A single living unit, a house, is located somewhat central to each lot.

Is this "good" housing? The suburban environment has long been criticized; the late 80's and 90's have brought forth another round of evaluation. Suburbs waste resources. Land, energy and material consumption is inefficient; suburbs cannot be sustained. Suburban houses are isolating: they isolate one household from another; they often separate a household from the outdoor space they seek. Suburban housing has become a commodity to be bought and traded, not a dwelling. This has led to a temporary, transient quality of households- a family begins with a starter home, then moves up; there is no commitment to a community. The home becomes a large appliance of selected features that potentially appreciate in value: it is an investment. In becoming a commodity, the value of a house and its community must be protected, leading to economic and social exclusion. Suburban housing is no longer affordable; the commodification of housing has put the cost of ownership beyond the reach of many people.

Despite the criticism, there is an undeniable demand for suburban homes. Suburban living provides a freedom of individual action, privacy and control of outdoor space, even if limited in size. Suburban living can and should provide much more. New developments need to restore a home's tie to both natural and community settings, increase density, rethink use of resources, and accommodate the change in the

demographics of households who want to live in the suburbs while maintaining the basic requirements of autonomy and connection to a place.

Suburban Planning

Suburban design and planning has recaptured the attention of the design profession. Current advances focus either on residential communities or on the house. Notable contemporary approaches at the community level include the "Traditional Neighborhood Development" as proposed by Duany and Plater-Zyberk and the "Pedestrian Pocket," a model proposed by Calthorpe, Solomon and Kelbaugh among others. The first model, reminiscent of the garden city movement of the 1920's and 30's, proposes large scale planning of the suburbs to evoke the organization of traditional neighborhoods with commercial, village centers. It is characterized by its comprehensive approach from urban design to architectural guidelines including design of infrastructure, pedestrian and vehicular networks, land uses, plot layouts, zoning guidelines, materials specifications and building types (Krieger 1991). The latter model, also comprehensive, focuses on the notion of a walking town with a high-density mixture of residences, retail and offices as its foci (Kelbaugh, 1989). Both the NTD's and transit villages accept the current form of the suburbs, the first adding some collective imagery to build coherently shared environments, the latter providing destinations within the suburban context. The pedestrian pocket is explicitly urban in character (Boles 1989).

Other advances have focused on the design and production of the house. Research and development in this area has produced either a set of house types or a prototypical, ideal home. Examples of work in this area include Andrew Downing and his pattern books, *Sunset homes*, the Case Study Houses of Los Angeles, mobile homes, model homes and the constant search for the affordable house. This house level approach has some drawbacks. Prototypical solutions search for the universally flexible house, one that can suit all lifestyles. The potential danger of seeking any such an absolute is that the dwelling becomes either unable to accommodate the typical diversity found in a residential setting, or

the dwelling becomes neutral, never seeming to fit any particular living group or any particular setting just right. In trying to define the ultimate home, or a range of model homes, the house has a danger of becoming static, unable to grow or change with its residents. More importantly, the model house is, by definition, designed without a particular site, excluding the landscape and neighborhood setting. The tendency is to develop a house which is inwardly focused to compensate for the unknown characteristics of the future site.

Between Town Plans and House Plans

The current organization of the suburbs, as initially described in this paper, is failing. Current approaches accept the current structure for the suburbs, rather than propose alternatives (or in the case of the Pocket Park, reject the structure for an urban model). I would suggest an alternative, an alternative which embraces the view of the extended housing setting as a fabric and focuses design attention on its fabric elements. Residential design is seen as a continuous, interdependent relationship of neighborhood to street to lot to house to room and daily activities occur in all levels.

Two models, conceptual poles of an environmental spectrum, are juxtaposed to understand the suburban situation. In the first, the house is seen from the outside, a discrete form containing a set of program functions within as a thin membrane intervenes between inside and out. Here the house is described as a mass sitting on its site with the activities organized within. Each dwelling is positioned like a machine, with a reasonable distance setting each apart from the other so as not to interfere with the other's workings. The shell-like forms are characterized by functional arrangements inside and are positioned as independent volumes on lots that sit side-by-side along a street. This organization of elements and spaces is referred to as a **volumetric fabric** and constitutes the predominant organization associated with suburban design today.

The second conceptual structure views the separation between inside and out as problematic with the dwelling separated from the site and dwellers from the context of the

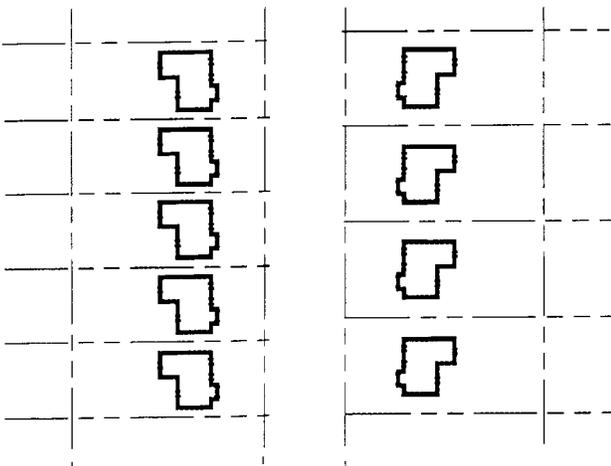


Fig. 1. Volumetric Fabric

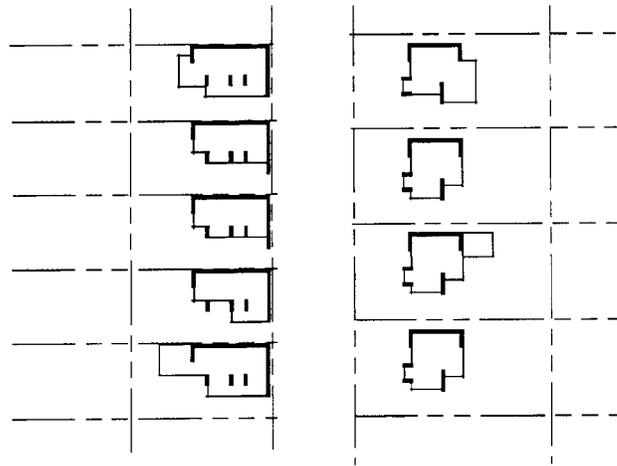


Fig. 2. Spatial Fabric

community. This other order, referred to as a **spatial fabric**, proposes that the inside-outside distinction be transformed, thus seeing the nature of housing as a continuous structure of elements and spaces.

While common to describe urban housing as a fabric, the term disappears in the suburban context. This paper discusses the practices that support the dominance of volumetric organizations, alternative practices and their applications in light of the critiques of suburban sprawl and isolation.

PERSISTENCE OF THE VOLUMETRIC MODEL

Many forces have converged to reinforce a volumetric structure of residential development, particularly in the suburbs. The single detached suburb is uniquely American in its origins, an ideal planted in the Jeffersonian era. Jefferson instituted the National Survey, his hope for an equitable and democratic way to allot land through the use of a sub-dividable grid. Jefferson was also concerned with the ways in which American homesteaders lived and built their dwellings; model homes from a sampler book suggested patterns of dwelling without regulating the domestic setting. The privatized, gridded lot with an inward looking model home became embedded in our national culture (Wright, 1981).

The formal structure of the suburbs was derived from the rural landscape of the farm or estate. Due to sheer dimension, each rural house works autonomously from the next. In suburban environments, density is significantly higher, yet the expectation of autonomy and outdoor space is similar. The house is placed in the center of its lot to maintain a minimal level of autonomy by maintaining the maximum dimension to adjacent properties. Privacy for the residents of the house is controlled at its facades. The yard is a moat; the home, a castle. This has a strong real estate rationale, the structure of the suburbs is dependent on adjacency of lots; if some change were to occur to an adjoining property, its owner wants to ensure the change has minimal effect in order to protect the value of house and lot (Rowe 1991). Each house is indepen-

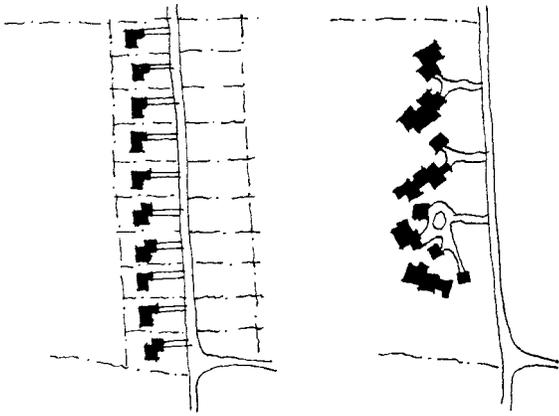


Fig. 3. Built/unbuilt sketches and footprint outlines of buildings are useful for some levels of information. When used as the sole representation for site layout, the designer must remember the unit layouts or assume an inward looking unit design.



Fig. 4. Some design tools, such as massing models, unconsciously lead to volumetric fabrics. Student: S. Baker

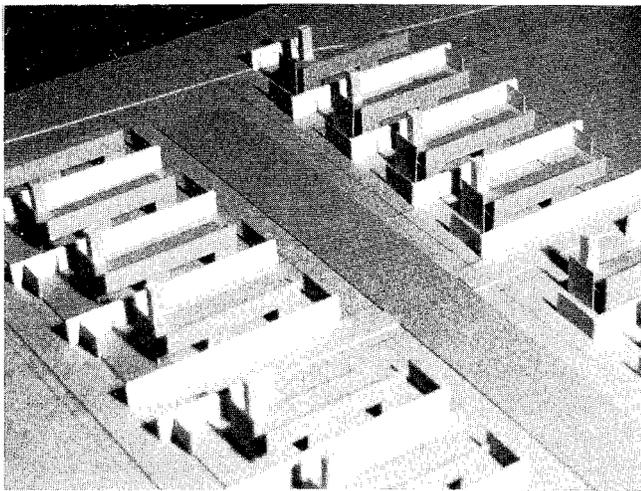


Fig. 5. Alternative design approaches to support spatial fabrics. Student: K. Kimura

dent of the next, reinforcing the form of the shell and its position. When minimizing external influences to a house, the focus is on the internal atmosphere of dwelling.

Zoning regulations, established to protect public good, have institutionalized the volumetric structure of the suburbs through the use of setbacks. Setbacks govern the relationship of a house to its property lines through the use of minimum dimensions. Typically, more dimension is allotted to front and back yards, less side to side, forcing a house to the center of its property, leaving an unusable space between the houses.

A unique aspect of American suburban dwelling is its reliance on light wood frame construction. Heavy timber framing was used to construct the earliest American house and the resulting form was a barn-like shell that could be subdivided. Subsequent technological changes to balloon framing and platform framing have been substitutional, maintaining the volumetric, shell-like quality of the house. Light wood frame construction does not inherently lead to shell-like buildings, but the form of the house as it has evolved literally builds a shell that is not readily discarded by the public.

Lastly, architects and planners of residential communities reinforce the dichotomy of inner and outer worlds of volumetric structures through the choice of methods and tools of design. Built-unbuilt diagrams, the placing of houses as "footprints" or roof plans on a site, the development of house types to be sprinkled on a site and massing models, all tend to separate decisions between the inside of the house and its setting and to reinforce a volumetric structure.

A METHOD: WHAT IS GOOD HOUSING?

The research began with the question: what is good suburban housing? To dwell is much more than to seek shelter. Norberg-Schulz describes the essence of dwelling as the ability of a place to satisfy our individual and collective needs for identification and orientation (Norberg-Schulz 1985). To identify with a place as dwelling requires that a person recognizes one's self in that place. To orient one's self in a place requires a sense of connection and extension to the context of that place, the extended physical, social and natural landscapes. These fundamental attributes of dwelling establish the conditions required in dwelling environments. The full discussion of the attributes, conditions and methodology are the topics for another paper, and will only be briefly described here to orient the reader. The conditions of dwelling — capacity, territorial claim and infrastructure — are examined at several levels of intervention (room, house, street, neighborhood, community) in order bridge the entire inside to outside spatial hierarchy.

Capacity is defined as the potential of spaces or forms to accommodate various arrangements of habitation and use. Capacity should not be confused with the program, which is the specification of functions to be located in a house. A program is static; a program would state that a "breakfast nook" is required of certain square footage and minimum dimensions to suit a certain number of people. Capacity is the

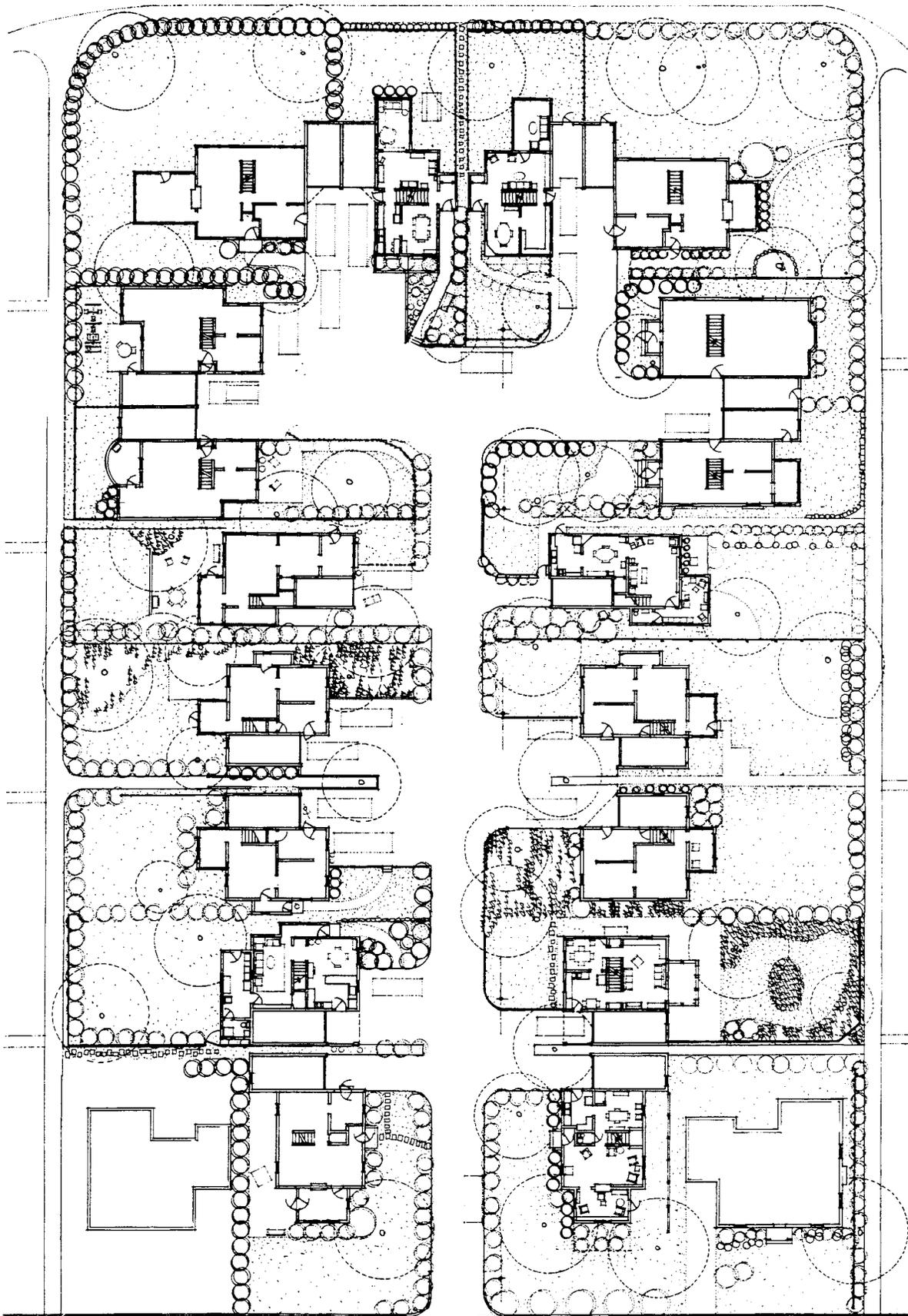


Fig. 6. Sample of field documentation- Radburn, NJ.

ability of the form of the house to be used in a variety of ways by its residents without having to undergo changes itself. Capacity works to extend the minimum requirements through the shape and configuration of the space. For example, a bay window at the edge of a living area defines an area of individual activities connected to the larger room of the household. It can hold a seat, a table, a tea area, a "breakfast nook." Capacity is concerned with how a form can be used, not the specification of a lifestyle. Good housing should have the capacity to hold a variety of lifestyles over time.

Territorial claim is defined as the control of habitation and access that can be exerted by a certain party (individual, living group, neighbors, community or public) over an area. Territorial claim is not equivalent to ownership. A bench in a public park may be owned by the town but it is claimed as a territory by a single citizen. The phenomena of claim exists at multiple levels: public, community, neighborhood, household and individual. Good housing exhibits a continuous syntax of claimed, usable spaces so that there is no unclaimed, interstitial space. Ideally, all levels of territorial claim should be provided in residential environments.

Infrastructure is defined as the systems that are the least likely to change over time; these tend to be the most permanent and expensive components of an environment and they usually establish the character of the collective environment. If some assemblages of a residential environment are more permanent, then other assemblages are more likely to change and these should be accessible to adaptation by residents over time. There is an expectation that houses and communities will change. The house does not have to be abandoned like an old appliance whose usable life has come to an end. Good housing should accommodate physical changes to suit individual requirements without loss to the continuity of the neighborhood.

A number of existing residential environments were selected to serve as case studies to observe the effect of these conditions. Each site was documented to record the physical variations and changes, and when possible, the interior and exterior signs of everyday living of the residents. Each case study was then physically described by identifying spatial and material elements and the syntax that characterizes each condition. These descriptions were overlaid to reveal a structure characterized primarily as volumetric or spatial fabric. The case studies include:

- Aberdeen Court, Radburn- Fairlawn, NJ (Wright & Stein, planners)
- Sach Apartments- Los Angeles CA (R.M. Schindler, architect)
- Horatio West- Santa Monica, CA (Irving Gill, architect)
- Butternut Street- Levittown, NY (Levitt & Son, developer)
- Church Street- Charleston, SC
- Henry Street- Cambridge, MA
- Sacramento Street- San Francisco, CA
- Oak Hollow- Clayton, CA (Presley of N. CA, developer)

An in-depth discussion of each case study and the comparative issues is not included in this paper.

AN ALTERNATIVE MODEL: SPATIAL FABRIC

The criticism of waste, isolation, commodification, lack of community and affordability, assessed against the volumetric forms of the suburbs suggests the need for alternatives that address the suburban structure directly. If the nature of housing is seen as a continuous spatial fabric of elements and spaces then residents are connected to their physical and social setting. The order of a spatial fabric is characterized by openness, continuity of space and interdependent relationships in juxtaposition to the attributes of volumetric fabrics as closed, separating and hierarchic. The notion of a fabric is more than descriptive, its usefulness lies in the generation, the design and making of housing. The applications of the spatial fabric model of housing design address the needs of suburbs: environments in which neighbors and community are part of dwelling, accommodation of demographic variations and changes, and increasing the density of suburban environments.

Application: Neighboring

The form and the position of the shell supports the isolation of its residents from neighbors. Public, household and individual territories dominate residential settings; suburban and urban environments lack intermediate levels in the systems of territories. Missing are the spaces that are intentionally designed for neighbors, those who live immediately adjacent to a household, and for community, those who share with a household but are not adjoining. Spatial fabrics support the interaction of groups of people and provide the forms of transitions from one level to another. Suburban communities should provide all levels of territorial claim, ordered in a way to support connections and maintain privacy.

Application: Accommodation

Dwelling is ultimately linked to the ability of distinct living groups and individuals to identify with a place and to connect to a larger setting. (Norberg-Schulz 1985). The difficulty of providing a dwelling for a distinct household is that the only thing that is predictable about a group of people is change. In order to accommodate its residents, a dwelling structure

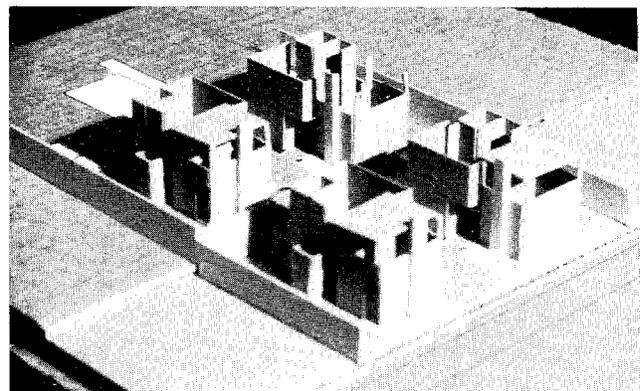


Fig. 7. Model of Horatio West. Student: J. Lee

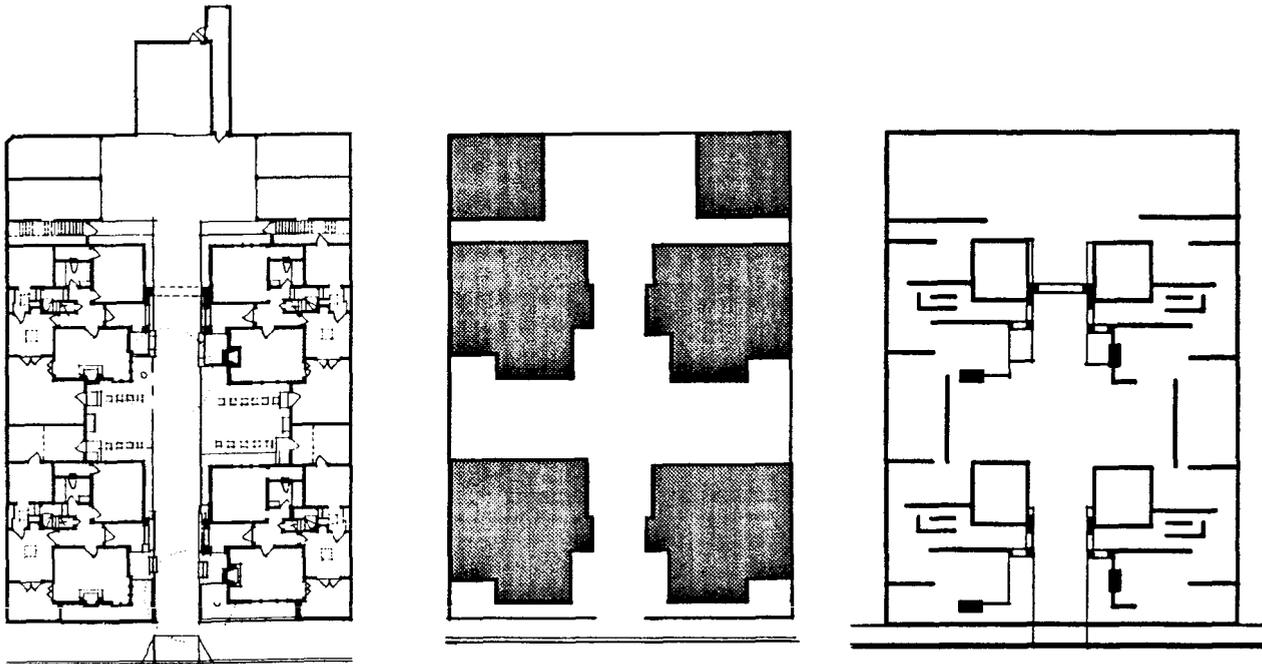


Fig. 8. Comparison of three drawings of Horatio West: a documented plan, a built-unbuilt plan and a fabric plan.

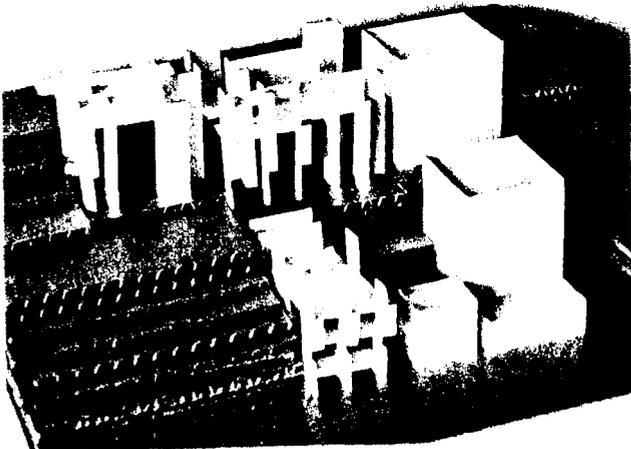


Fig. 9. Model of Sach Apartments. Student: C. Cagampang

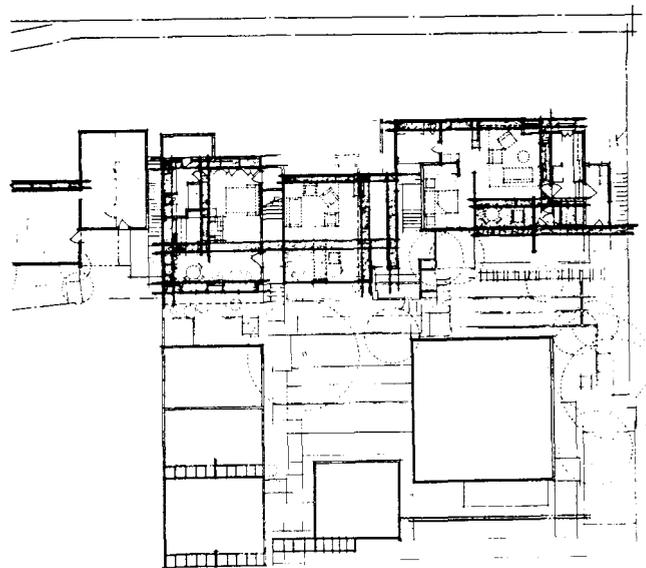


Fig 10. Capacity overlay of the Sach Apartments

must provide for a range of associations and a range of lifestyles. In the case studies, the dwelling structures that responded best to changing living requirements, while avoiding neutrality, are characterized by a condition of capacity imbedded in the dwelling fabric. The design of fabrics with such overlays as capacity and infrastructure allow for the explicit identification of those qualities which sustain identification and accommodate change.

Application: Increased Density

Density is a problem of organizing the fabric of a dwelling structure, including the character of the access, privacy, and collective territories needed to support the number dwellings

involved. Low density environments (four units per acre or less) are characterized by the independence of one dwelling from another. Dense environments (40 units per acre and greater) are characterized by distinct separation of public and private realms, again, surprisingly, creating the independence of one dwelling from the next. In these two environments, the fabric can be dominated by volumetric structures without conflict. This independence makes it possible to be hierarchical in designing so that decisions can be made about each level of intervention as an isolated concern - lower level changes can be made without affecting upper levels. For

example, the designer can make changes to a room without affecting the house, to the house without affecting the site plan, to the site plan without affecting the street, etc. Likewise, changes at an upper level are likely to have ramifications on lower levels. Changes to a street will affect the site, changes to the site will affect the house and so on. Thus, volumetric structures are adequate when the fabric is characterized by independence.

In the suburbs, a dwelling is no longer independent of the next, but interdependent. Design decisions at one level may influence decisions above and below. For example, changing the use of a bedroom to living room, will potentially affect the house, the site, and the relationship to neighboring homes. This interdependent relationship reflects the continuous nature of the fabric. Volumetric structures have not adequately resolved the issue of density; spatial fabrics support the design of interdependent relations.

CONCLUSION

To propose a new structural model for the suburbs is to seemingly work against its traditions. Yet, if the criticism directed against suburban form is to be addressed and suburban living sustained, its structure must change. The move from volumetric structures to spatial fabrics does not require a revolution, it is a transformation. People do not need to reinvent the way they choose to live. It is not possible nor necessary to radically alter the way we build. To work with suburban structures spatially does not require any change to prevailing institutions, it fits within NTD and PUD models. Production methods are in place. Any level of development is appropriate- renovation, infill and large tract. To make better, livable, sustainable cities, we have to insist that the suburbs do more; this paper advocates for additional conditions and a shift in point of view of suburbs

from a design problem characterized by volumetric shells to spatial fabrics, from houses thought of as appliances to environments to live in and among.

A Final Note

The theory developed in this paper is part of more extensive and on-going research done in collaboration with Prof. Thomas Chastain at U.C. Berkeley.

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