



REHABBING THE SUBURBS: FREEDOM TO CHANGE

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A.B. Harvard College, 1976

Submitted in Partial Fulfillment  
of the Requirements for the Degrees of

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# Abstract

## REHABBING THE SUBURBS: FREEDOM TO CHANGE

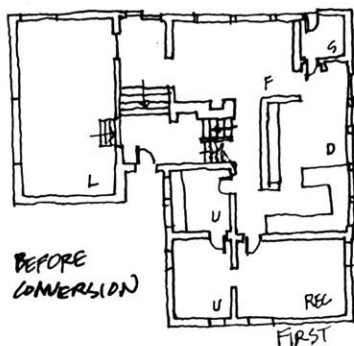
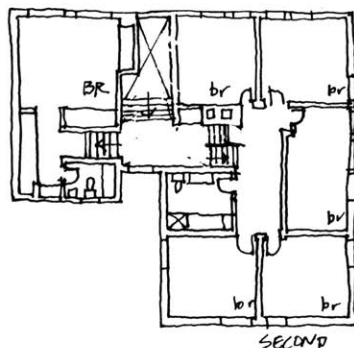
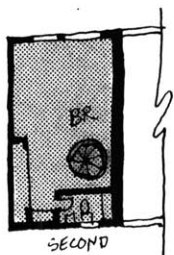
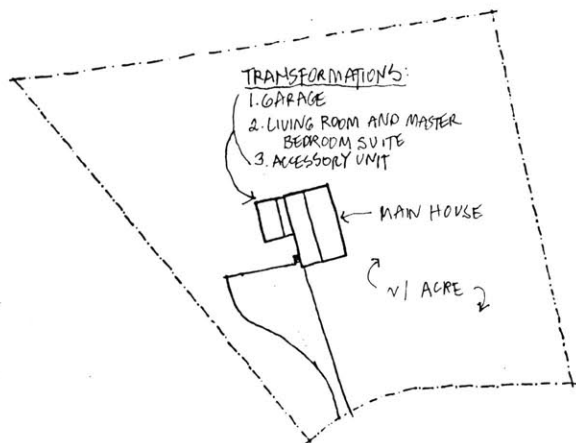
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Thesis Supervisor: Philip B. Herr  
Associate Professor of  
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This thesis uses the current phenomenon of accessory apartments as a vehicle for exploring possibilities for the transformation of the single family house and its suburban context, with particular emphasis on the post-war housing stock. After a brief overview of house types, the first section of this study analyzes three common postwar houses and determines their potential for conversion. The second section explores the design issues which arise in converting a single family house to incorporate a small apartment and raises the importance of contextual concerns in guiding neighborhood changes. Finally, approaches to regulating the physical changes which accompany accessory apartments are discussed.

This work is based on the premise that single family houses can be reinterpreted to accommodate new lifestyles as housing needs change. Creative ways to encourage and guide this process of change must be pursued; this does not mean change for the sake of change, but rather change with a careful eye to what exists. An understanding of the existing physical patterns of single family residential environments can provide the basis for the freedom to change.



AFTER  
CONVERSION

BEFORE  
CONVERSION

To the Board of Appeals:

We have seven children between us, 5 of whom have lived with us in the past and are currently in college and/or employed and living away from home. There are 3 bedrooms available for their use in the proposed plan when they are home on vacation.

In 1963 we chose to buy a house in Conantum for the neighbors, land use and common land ownership, style of architecture and rural quality; we have been very happy living here. Our neighbors are our friends and important to us. We have invested care and energy into our home and land. We want to stay here. Several weeks ago, we spoke with our immediate neighbors about our plans for an apartment and they have accepted these plans.

The costs of our children's education and other expenses as well as numerous additional financial obligations have made our situation so difficult that we cannot remain here as is. An income producing apartment would make it possible for us to stay.

Overall, making this apartment would be an excellent solution for us, consistent with our desires and needs and with the intent of the bylaw. In addition, we feel it would have minimal impact on our neighbors and the quality of our Oxbow Road and Conantum neighborhood.

Letter accompanying  
Application for Accessory Apartment,  
from Board of Appeals files,  
Concord, MA

BI-LEVEL HOUSE, CONCORD, MA (documented in field research).

## Acknowledgements

Thanks to:

my advisor, Phil Herr, for his support, criticism and patience, and for reminding me of what is feasible;

my readers, Gary Hack, for helping me chart a path between the disciplines of architecture and planning, and Chester Sprague, for probing the limits of what is possible. His fresh thinking about suburban residential environments, along with that of Anne Vernez-Moudon, initially sparked my interest in this research;

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my parents, for making it possible, and JT, for his continual and polyvalent reminders that it was not impossible.

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## Introduction

This study explores an alternative to a sacred American tradition--the single family house: it examines ways that two households can live in a house originally built for one family and focuses on the design issues involved in this process of "doubling up." A recent study by the National Association of Homebuilders (1980) found that 93% of those interviewed rated the single family house first among dwelling types [p. 6]. Why study a housing alternative which appears anathema to American aspirations? Furthermore, why concentrate on the physical implications of house subdivision when the very concept raises social, cultural and political questions which strike at the heart of American privatism and independence?

There are four responses to such a challenge. The most pragmatic answer is that single family conversions, though they may often be illegal and frowned upon by neighbors, are

already widespread. Changes in demographics and lifestyles combined with increased housing costs have caused many households to seek alternatives to the notion of the nuclear family in its detached house. One alternative, which is the subject of this research, is the creation of a separate housekeeping unit, commonly called an accessory apartment, within the structure of an existing single family house.

Second, the accessory apartment phenomenon is intriguing because it invites an examination of the ideal of the single family house in order to identify the qualities that have made it synonymous with the American dream. In cities and suburbs which have begun to address the conversion issue,<sup>1</sup> one hears a pervasive concern with maintaining "single family character," yet most communities have not attempted to define this term. "Single family character" is elusive because it confuses social and

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1. Fieldwork for this study included visits to Lindenhurst, NY, Weston, CT, and Concord, MA, three communities which have had accessory apartment regulations in place for eight years or more. The variety of communities which are now tackling the conversion issue is striking; it includes large cities, such as Minneapolis, MN, Portland, OR, and Seattle, WA, and suburbs, ranging from late nineteenth-century streetcar suburbs and postwar suburbs with lot sizes of 5000 to 8000 square feet to exurban communities with lot sizes of two acres and more.

physical realities. It may refer to the occupants of a house, the house itself, or the neighborhood as a whole. Nevertheless, many of the zoning ordinances which communities have adopted to regulate accessory apartments use physical standards such as number of entries, presence of exterior stairs, and provision for parking as indices of "single-familyness." An exploration of these physical issues is necessary to determine whether they are valid concerns or whether they are only a smokescreen for disguising objections to social change.

Third, the growing literature on accessory apartments<sup>2</sup> has dealt primarily with regulatory issues. The number of additional entrances, stairways, and cars that will result from conversions of different house types has not yet been explored. However, despite the paucity of infor-

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2. See Patrick H. Hare, Accessory Apartments: Using Surplus Space in Single-Family Houses (Chicago, IL: American Planning Association, 1981), for a general overview of issues relating to accessory apartments. Local and regional publications include: Babylon, NY, "Report on Illegal Two-Family Dwellings in the Town of Babylon" (January 10, 1979); Central Naugatuck Valley Regional Planning Agency, Waterbury, CT, "A Back Door to Least Cost Housing: Expanding Housing Opportunities Inside the Single Family Dwelling," Preliminary Draft (June 1982); Marin County, CA, Comprehensive Planning Department, "Second Units: One Solution to Modest Cost Housing Need" (April 1978); Merrimack Valley Planning Commission, Haverill, MA, "One Family, Two Family: Accessory Apartments in the Merrimack Valley" (April 1980); South Western Regional Planning Agency, Rowayton, CT, "Accessory Apartments" (no

mation about the nature and extent of change that accompanies conversion, every manual and most ordinances assume that exterior alterations should be minimized. A focus on the physical aspects of conversions fills a gap in the literature which may have resulted in unnecessarily restrictive regulatory thinking.

Fourth, and perhaps most important, the reinterpretation of the single family house which is implied by accessory apartments most likely represents only the beginning of profound changes in American attitudes toward housing. Vernez-Moudon and Sprague (1981b) have observed that more intensive use of the single family stock is supported by a widespread movement toward housing conservation, brought about by a combination of fiscal cutbacks, environmental concerns, the high costs of borrowing, and

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date); Tri-State Regional Planning Commission, New York, NY, "Legalizing Single-Family Conversions," revised (November 1981); Westchester County Department of Planning, White Plains, NY, "A Guide to Accessory Apartment Regulations: Meeting Smaller Household Needs" (April 1981). Two exceptions to the regulatory focus include Phillip L. Clay, "Improving the Utilization of the Existing Housing Stock: The Case of Accessory Apartments," paper presented at a conference sponsored by the Joint Center for Urban Studies of MIT and Harvard University and the Lincoln Institute for Land Policy (July 1, 1982), and Martin Gellen, "A House in Every Garage: The Economics of Secondary Units," paper funded by the Center for Real Estate and Urban Economics, University of California, Berkeley (no date).

rising energy prices [pp. 4-6]. Smaller household size and rapid household formation caused by the entry of the baby-boom generation into the housing market, the rehousing of the parents of this generation who are now "empty nesters," a marked increase in the elderly population and in single-parent households have created a mismatch between housing demand and supply. These demographic shifts are reinforced by new lifestyles which include women in the work force, later marriages, and fewer children. The back-to-the-city movement and the trend of condominium and townhouse construction in both suburban and urban areas suggest that the current generation of households may not be as house-proud as its predecessors. A reassessment of the existing single family stock must accompany new construction and inner city rehabilitation if the mismatch between demand and supply is to be redressed.

A fresh look at the single family house by design professionals is long overdue. Architects and planners have virtually ignored the question of housing the average American family since the planned suburbs of the 1920s. Stern (1978) explains how the profession lost

interest in the design of residential settings:

Under the impact of European modernism, . . . the tradition of serious suburban design was abandoned in the late 1930s and the 1940s by our best architectural talents just as our suburbs burgeoned to unprecedented size. At a time when our very best talents should have been thinking about the suburb and the suburban house, they were . . . building one-of-a-kind houses as monuments that would establish reputations leading to careers designing museums or office buildings.

Our best architects abandoned the suburb to the ordinary practitioner and to the speculative builder. And the discipline of town planning at the suburban scale has been allowed to die. For the past thirty years there have been very few efforts made towards understanding the suburb and suburban architecture. [pp. 98-100]

In the same vein, Walker (1981) has labelled the "Contractor Modern Style" as the "true twentieth century vernacular mode" [p. 252]. Many designers have not only ignored suburban house design; they have spurned it. Venturi, Scott-Brown and Izenour (1977) summarize this disdain:

. . . modern architects . . . contemptuously reject the current vernacular of the United States, that is, the merchant

builders' vernacular of Levittown and the commercial vernacular of Route 66. . . . They understand the symbolism of Levittown and do not like it. [pp. 152-153]

Exceptions to this professional neglect of the average single family house are Stern's reexamination of the pre-automobile suburbs as precedents for new higher density housing design and Venturi's explorations of the symbolism of post-war houses.<sup>3</sup> Another handful of critics have looked at ways to intensify the existing suburban fabric. Alternative strategies range from housesharing, subdivision of houses for condominiums or to include a rental apartment, the construction of small additions, granny flats, or echo housing in backyards, the combination of several lots to accommodate higher density housing forms, or the reorganization of entire blocks to incorporate new uses in the center of the block.<sup>4</sup>

3. See "The Anglo-American Suburb," Architectural Design 51, 10/11 (1981); Robert A. M. Stern, "The Suburban Alternative for the 'Middle City,'" Architectural Record (August 1978); and "Signs of Life: Symbols in the American City," published in conjunction with an exhibition organized by Venturi and Rauch, Architects and Planners, at the Renwick Gallery, Washington, D.C. (February 26 - September 30, 1976).

4. These various strategies have widely different origins. For an overview of these approaches see Anne Vernez-Moudon and Chester Sprague, "Housing Infill and Consolidation," paper prepared for the Joint Center for Urban Studies of MIT

This thesis isolates one of these approaches, subdivision of the single family home, and explores its physical implications both for the individual household and for the surrounding neighborhood. During the thesis process, the applied nature of the topic has taken precedence over a more exploratory approach. Nevertheless, several attitudes towards housing which are frequently discussed in MIT architectural education provide a theoretical underpinning for this investigation of the transformation of the single family house: the need for flexibility and change, an emphasis on small-scale design issues, the relationship between a proposed intervention and the surrounding context, and the value of a resident's participation in the making and maintaining of his housing environ-

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and Harvard University and the Lincoln Institute for Land Policy (June 1981). On housesharing see Action for Boston Community Development, Inc., Planning and Developing a Shared Living Project (Boston, MA: ABCD, Inc., 1979) and Stephen R. McConnell and Carolyn E. Usher, Intergenerational House-Sharing (Los Angeles, CA: The University of Southern California Press, 1980). For granny flats, see Patrick H. Hare, "Why Granny Flats Are A Good Idea," Planning (February 1982). For studies which look at the single family residential fabric at a larger scale than the individual lot, see Anne Vernez-Moudon and Chester Sprague, "Consolidation: A Method for Expanding the Use of Single Family Housing in the Suburbs," unpublished NEA grant application (December 1981); Anne Vernez-Moudon, "Consolidation: Expanding the Use of Single Family Settings," Suburban Design Studio Report, unpublished, University of Washington, Urban Design Program (Fall 1981); and Design Quarterly 108, "Vacant Lottery" (December 1978).

ment.

Discussions of flexibility and change recognize that built environments are not static. To say that housing should be flexible implies that residential environments can be adapted to the changing needs of individual households and of society at large. The Concord, MA homeowner quoted in the frontispiece represents one voice among many whose housing needs change through the life cycle. A glance at home magazines of different eras indicates that these changes operate at an aggregate level as well; during the 1950s, one finds a preoccupation with ways to find more space in articles such as "Six Suggestions for Giving Space and Stature to the Small House" (House & Home, October 1952), while today's magazines reflect the opposite concern as builders look for ways to respond to the increased demand for more and smaller units.<sup>5</sup>

The term "tractability" has been used to refer to the potential of a housing type to accommodate change.<sup>6</sup> Tractability measures

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5. See William L. Nolan, "An Efficiency Apartment from an Expendable Garage," Better Homes and Gardens (April 1982).

6. See MIT Department of Architecture/ILAUD - Urbino,

not only the physical potential for change but also the ease with which modifications can be made. The first section of this study assesses the tractability of three common single family house types for one particular type of change-- the installation of a small apartment. The detailed look at small-scale design issues which comprises the second part of this thesis draws on the attention to materials, building method, and dimensioning of places for human activity which is stressed in MIT architectural education. The concern with relating physical change to the surrounding context which emerges at the end of the second chapter reflects another thread of education at MIT where the built environment is frequently discussed in terms of "rules" and "patterns."<sup>7</sup> Finally, participation is concerned with the resident's ability to influence the housing process as a way of achieving a measure of control over his environ-

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"Tractability in Housing and Neighborhood Form for Three Selected Housing Types in Boston: A Preliminary Report," unpublished (1980).

7. See N. John Habraken, SAR '73 (Eindhoven, Holland: Stichting Architecten Research, 1973) and Christopher Alexander, Sara Ishikawa, and Murray Silverstein, A Pattern Language (New York, NY: Oxford University Press, 1977).

ment. The process of reorganizing one's house to incorporate a small apartment could provide a vehicle for participation for both house and apartment residents.

Theoretical questions aside, it is hoped that this study will assist planning and design professionals who are struggling with the hesitations that neighborhood residents express when they see change in their own front, back, and side yards. Perhaps, too, it will be of help to homeowners who are contemplating alternative uses for upstairs bedrooms or basement family rooms that sit empty now that part of the family has left home.

The study is structured in three parts. First, three common suburban house types are studied to determine their potential for conversion, and alternative approaches to conversion of each house are illustrated. Second, the design issues which manifest themselves on the exterior of the house as a result of conversion--entries, stairs, private outdoor space, and parking--are explored in detail to assess their impact on "single family character." This section concludes with a discussion of contextual concerns which relate to the accessory

apartment phenomenon. Third and finally, the regulatory implications of these exterior alterations are addressed.

## Conversion Approaches for Three House Types

### THE SINGLE FAMILY HOUSE

A brief discussion of ways to classify single family houses provides a useful starting point for an assessment of the potential of the single family stock to accommodate a second unit and explains the rationale behind the selection of the three types chosen for this study. The overview of houses is followed by a description of the characteristics of the single family type which make it easy to convert and a clarification of the assumptions which underlie this study. Finally, conversion possibilities for three house types that have been widely built across the country--the Cape Cod, the ranch and the split level--are explored.

Realtors loosely classify houses according to style, but style does not address the elements of house organization which influence potential for conversion. Seeking an easily measurable way of identifying which houses are

eligible for an accessory apartment, regulators have used minimum square footage or age of structure as classification methods. Portland, Oregon's Add-a-Rental ordinance permits the addition of a second unit to houses over 2000 square feet, while Montclair, New Jersey requires that a house be twenty years old before conversion can occur.<sup>1</sup> Often communities have limited conversions to areas where large older houses predominate.

This research uses size, age and plan organization to make a selection of houses for further study. It focuses on houses with three to five bedrooms, a minimum of 1 1/2 baths, and a garage or carport for at least one car. These are medium-sized houses, ranging from roughly 1200 to 3000 square feet.

Because conversion implies the transformation of one large house to two smaller units, size is clearly an important factor. Medium-sized houses are chosen for this study which seeks to identify generic approaches to conversion rather than solutions for specific houses. Small houses which cannot be converted without substantial new construction are excluded, as

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1. As cited in Hare (1981), p. 14.

are very large houses which can often be subdivided in different ways to include two or more units.

For this same reason, postwar houses which have been widely replicated rather than older homes, which are often idiosyncratic in organization, are analyzed. A focus on the postwar stock may seem unusual since conversion ordinances are often directed at preserving older homes. It is hoped that these examples of accessory units in postwar homes will reveal that second units are equally viable in houses of the 1950s and 1960s. After all, many houses of this era are reaching an age when rehabilitation work is needed in order to give them a second lease on life. Furthermore, many examples of conversions in postwar houses already exist<sup>2</sup> and were noted in each of the three communities visited during this study.

A classification system which addresses conversion potential must isolate the factors which make a house more or less easy to convert. These "convertability" factors depend upon the relationship between three variables: level of investment, unit quality, and privacy. The

level of investment required to create viable private units for two households within a structure originally built for one family is the central issue in assessing conversion potential. The ease with which separate privacies can be established in a single family house depends on the spatial relationships between various zones of the house, while the level of investment required depends on the location of the permanent elements relative to these zones. A brief review of the zones and elements which make up the single family house will set the framework for a typology of houses which can be used to assess conversion potential.

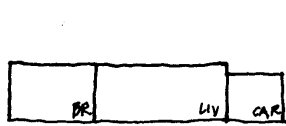
All houses consist of three zones of activity--living, sleeping and service, which are characterized by certain minimum dimensions and may be organized in a variety of vertical and horizontal relationships. In the tract houses which are the focus of this study, these uses are usually tied to discrete zones on different floors or in separate wings: generally, living activities have a direct connection with outdoor spaces, sleeping is associated with more private upper floors, and the service zone is related to the street (or alley).

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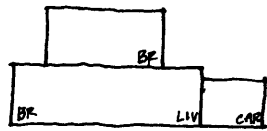
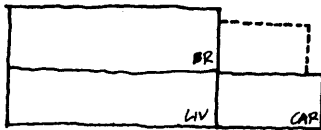
2. See Clay (1982), p. 13.



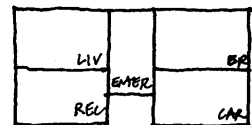
An initial classification system can be structured around the number of levels in a house and their relationship to each other. Although uses are indicated to clarify the most commonly found organizations of zones within each level, they are not intended as a constraint on conversion. The diagrams are deliberately drawn with their long dimension toward the street because this is the most typical orientation of postwar houses.



ONE-LEVEL (RANCH)

ONE-AND-ONE-HALF LEVEL  
(CAPE COD)

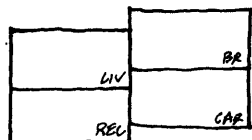
TWO-LEVEL (COLONIAL)



BI-LEVEL (RAISED RANCH)



THREE-LEVEL (SPLIT LEVEL)



FOUR-LEVEL (SPLIT LEVEL)

SURPRISINGLY, THE RESULTING CATEGORIES ARE PARALLELED BY THE REACTORS' CLASSIFICATIONS.

In addition to the organization of levels, the distribution of permanent elements influences the possibilities for conversion. Takase's (1981) study of the stick-built house, which determines which types of construction projects are most appropriate for self-help, is useful because it identifies which features of the single family house are most permanent, or difficult to change. This relates also to level of investment because projects which require hiring a professional, either for expertise, special tools, or physical strength, will probably also necessitate greater resources. Takase examines a range of interior and exterior renovation projects and additions and concludes:

All the tasks which were evaluated "low" potential for self-help belong to service subsystems, or more specifically to service distribution systems such as wiring and plumbing. . . . These restricted tasks become critical in exterior addition or house expansion projects.  
[p. 82]

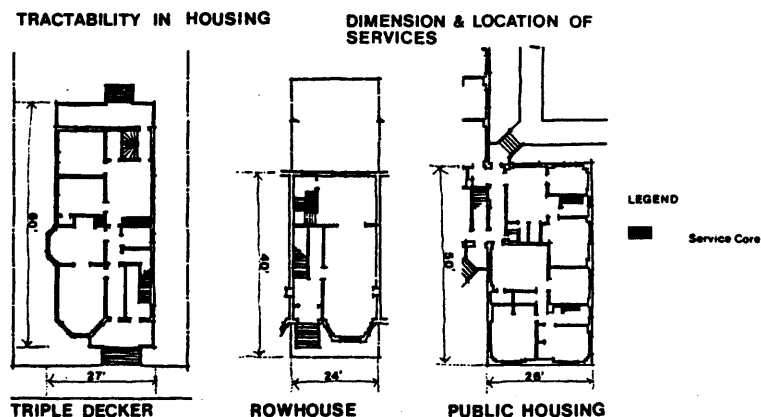
Clearly, fixed elements such as plumbing walls, chimneys, and horizontal and vertical circulation influence the form that conversions will take, particularly given the objective of minimizing cost.

Bandarin's (1979) use of typology in his discussion of the historic renovation of Bologna, Italy is relevant to this distinction between the fixed and the fluid elements of a house:

A typology is nothing but a similarity of the forms of living, working, and operating, materialized in architectural structures. . . . Two aspects are always present: a "constant," which is the original structure, and a "variable" which is the way of using it . . .

The use of typology as a methodological tool allows us to separate the elements in a building that are constant from those that are variable. [p. 194]

A study of the tractability of three Boston housing types (MIT/ILAUD, 1980), further confirms



FROM MIT/ILAUD, p. 37.

the importance of identifying the "permanent" elements of a housing type in order to understand the constraints to change. For each type, the number of floors, dimensions, materials, location of services and access, circulation, opportunities for expansion, light, private outdoor space, parking, and qualitative features such as views, imageability and architectural details and variations are described [pp. 33-34].

A classification of suburban houses which diagrams the relationships and dimensions of the various zones and fixed elements to each other can be used as a tool for assessing conversion potential. The power of typological investigation is that it can provide a framework for analyzing building forms without a consideration of use. The physical form of the detached house, with its zones of living, sleeping and service, can be examined without tying these uses to specific locations so that alternative allocation of spaces can be considered.

Lars Lerup (1978) has described the single family detached house as follows:

The typical flatland house is a pavilion, more or less centered on the lot, with windows in all four elevations and doors in at least two, one door faces the street. The plan is simple: two rows of rooms around a central corridor and stairs to eventual upper and lower floors. [p. 81]

Compared to other residential types, the single family house poses minimal constraints to change. Its five-sided exposure means that light and ventilation may enter from any direction, and space for outdoor activities can be located on any one of four sides or on the roof, if design permits. Subdivision may occur horizontally or vertically, as is traditional in two-family duplex organizations, and additions may grow laterally, linearly or vertically.

The flexibility which results from this potential to expand in any one of five directions is reinforced by lightweight building materials and the decentralized nature of the American homebuilding process. Takase states that:

One of the triumphs of this [wood] construction is the adaptability of the American house to rapid changes in American lifestyles. . . . Because few of the interior walls are load-bearing, rooms can be enlarged, and house layouts

changed to meet changing needs and preferences with relatively little expense. [p. 11]

This high degree of flexibility means that endless changes may occur, and they do.

The next section of this chapter focuses in detail on three of the six house "types" which are indicated on p. 15 : the one-and-one-half level Cape, the one-level ranch and the split level with three floors. Because the one-and-one-half level house shares many characteristics of the full two story and the three and four story split levels are likewise very similar, only one of each type is studied. The bi-level, which is a variation of the one-level, is illustrated through examples gathered during field research. The plan evolution and major variations of each of the three types is briefly described, with emphasis on the following factors:

- location of plumbing walls and chimneys or other heavy elements
- location and form of vertical and horizontal circulation
- overall dimension
- location of entries

- relationship of interior plan to outdoor space
- location of cars

A medium-sized Cape, ranch, and split level house with a "typical" plan organization including two bathrooms is then selected, and for each of the three houses, a series of conversion options and the implications of each alternative are identified. The range of approaches includes: attic or basement apartments, garage conversions or units above the garage, an upper or lower level unit (depending on which floor of the house is the main living level), and conversion of a portion of the main living level to the second unit. The quality of the resulting two units is then examined according to the following factors:

- privacy of entry and access
- dimensions and organization of living space
- through-room circulation
- light, views
- visual and acoustical privacy
- provision of use areas lost during conversion (laundry, etc.)

The demolition and construction necessary for each conversion is indicated in order to deter-

mine the level of investment required for the alternative approaches. This analysis will assess which conversion strategy is most appropriate for each house type and which types are easiest to convert. The conversions which are shown are not the only, or even the best approaches for each house type, but rather serve as examples to illustrate the issues and trade-offs which are common to conversions.

#### ASSUMPTIONS

Several assumptions have been made in order to determine the conversion potential of the three house types. To test the limits of each type, the objective of maximum autonomy between units is assumed. Vernez-Moudon and Sprague (1981a) have drawn a distinction between autonomy and privacy which is useful here. Autonomy implies a physical separation between units, while privacy implies the potential to carry on one's activities without undesired intrusions, whether or not units are physically independent from one another. According to these definitions, most individuals will prefer maximum privacy, though the degree of autonomy desired may vary. Given evolving lifestyles and family

structure, this assumption about autonomy is a conservative one.<sup>3</sup>

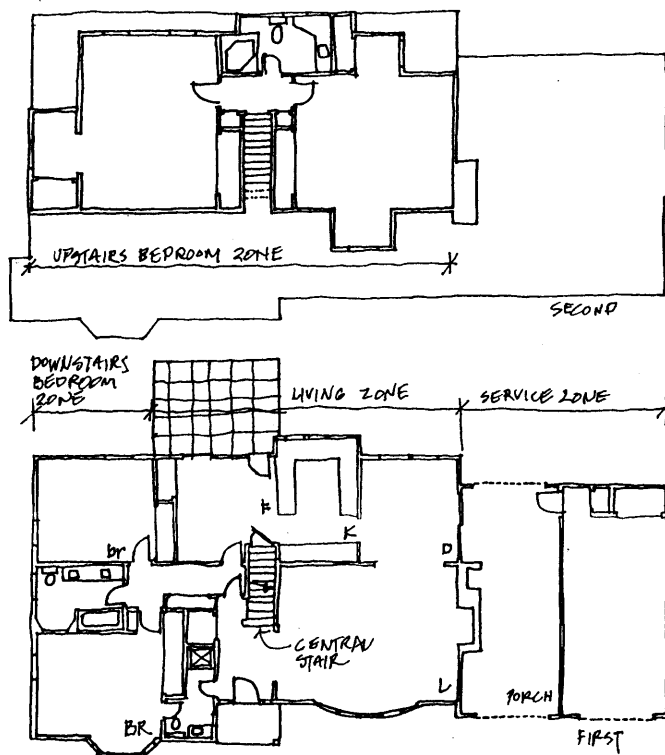
Second, the assumption of a primary and secondary unit, which is specified by most accessory apartment ordinances, is maintained. Two ideas follow from this assumption: the notion of the "heart" of the house and the notion of a small house for one or two people. In most cases, the heart of the house, whether it be a corner of the living room around the fireplace, the family room opening onto the backyard, the kitchen, or some other room where many hours are spent, will remain part of the primary unit. The smaller unit will generally occupy surplus space or space that becomes free as family size and needs change; its dimensions need not be as generous as those of the main house because many of the activity settings necessary for a three to four person household can be combined in a house for one or two. Although a one-room studio would be viable as an accessory unit, the more difficult case of an apartment with a separate bedroom is explored here.

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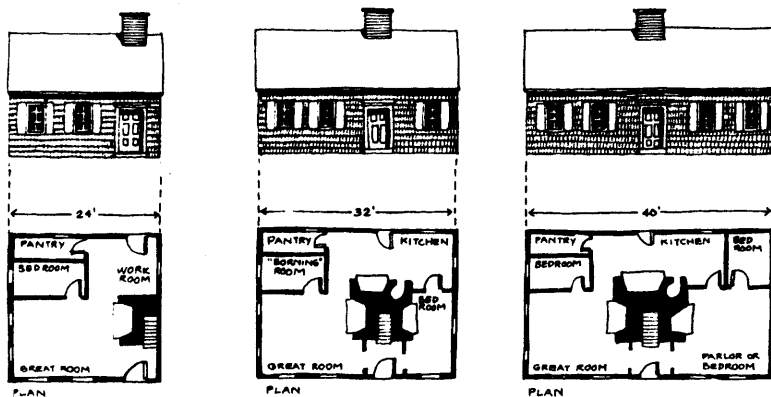
3. The phenomenon of housesharing is becoming an increasingly viable option for people at very different stages in the life cycle. Housesharing raises another realm of design issues which are outside of the scope of this study. See, in addition to footnote 4, above, Carol Boemer, "Shared Living Environments," unpublished MIT M. Arch. Thesis (February 1982).

Third, the goal of minimizing major exterior alterations is adhered to. New entryways, stairs, windows and porches may be introduced, and private outdoor spaces and parking places for the second unit are defined. However, major additions which require new foundations are kept to a minimum.

This set of assumptions reflects the concerns that many suburban communities are voicing as they struggle with revisions to their zoning ordinances. As such, they may err on the side of conservatism. They do not presume major changes in household structure, nor do they imply significant alteration of the built fabric of the suburb or its streetscape. Alternative approaches which involve units of similar sizes, more than one extra unit, the sharing of certain facilities, or substantial exterior changes or additions are alluded to where appropriate, but for this initial test of conversion potential, conservative assumptions provide useful constraints for testing the limits of the three house types. It is worth mentioning, however, that many of the design issues which are explored here are relevant not only to accessory apartments, but also to other reinterpretations of the single-family house.



TYPICAL MEDIUM-SIZED ONE-AND-ONE-HALF-LEVEL "CAPE"  
(ADAPTED FROM MASTER PLAN SERVICE P-725)



1700 1/2 HOUSE  
(MOONLIGHT COTTAGE)

1710 3/4 HOUSE

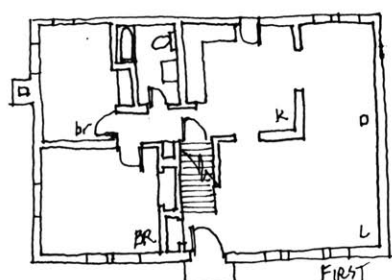
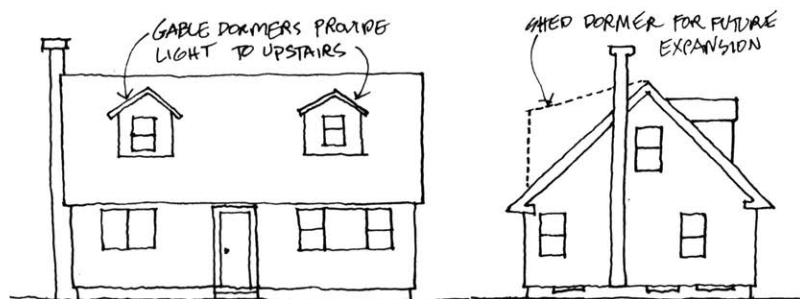
1720 FULL CAPE COD  
(from Walker, p. 88)

### THE ONE-AND-ONE-HALF-LEVEL CAPE COD

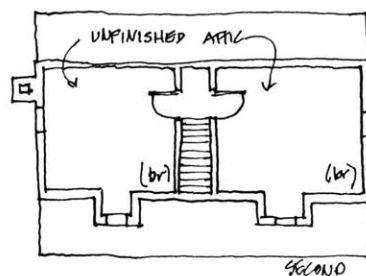
The fundamental intention behind the one-and-one-half story Cape Cod house is expandability. From its inception in the early eighteenth century, the Cape Cod was designed so that it could be partially built and then expanded from a cottage, or half house, to a three-quarter house, and finally to a full house. One book of made-to-order house plans describes the Cape as follows:

Extremely versatile, the 1 1/2 story can start out as a two-bedroom, one bath house with the upper level left unfinished as an "expansion attic." This works well for newly married couples who first want maximum living area at minimum cost, then add a bedroom or two, plus a half or full bath, as needed on the second floor. It's equally good as a retirement house: upstairs may be closed to minimize work or, with simple alterations, it may become a rental income unit. [Master Plan Service, no page number]

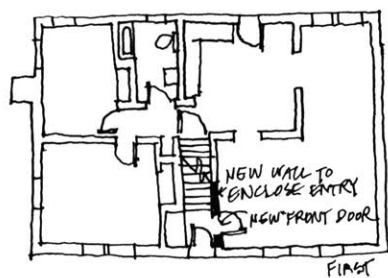
Originally built to resist Atlantic winds, early Cape Cods had "no projections or exterior extraneous decorations" [Walker, p. 88]. While eighteenth century Capes relied on small windows in their gable ends to provide light to the upper floor, modern Capes use gable and shed



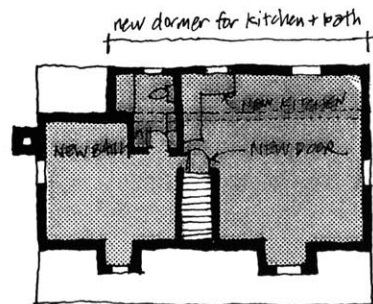
BEFORE CONVERSION



SECOND



AFTER CONVERSION



ACCESSORY UNIT

SECOND

CAPE COD HOUSE, LINDENHURST, N.Y.  
(documented in field research)

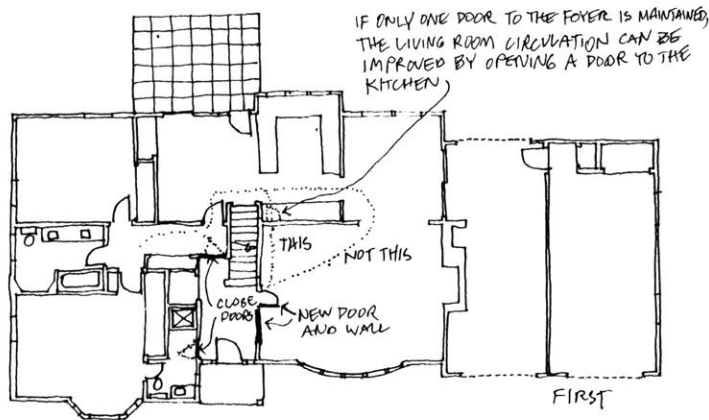
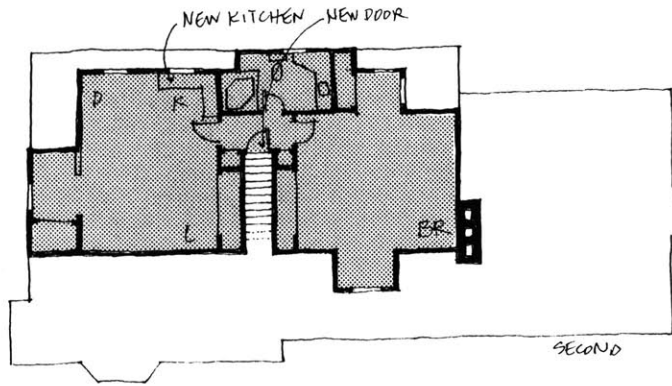
often the upstairs bath is pre-existing.

dormers and occasionally a gable roof to increase the livability of the second floor. This expanded upper floor can generally be isolated as an accessory unit.

Capes became the predominant new house type during the difficult economic times of the 1930s because builders found that they were cheaper to build than the full two-story colonials which had been popular during the more prosperous 1920s.<sup>4</sup> The most modest Capes, built from the 1930s into the early 1950s on 5000 to 7500 square foot lots, were even smaller than the 1720 full house shown above. With a 34' x 24' footprint, this small house nevertheless contains four bedrooms: two on the first floor for immediate use and two above for use as the household grows. Most Capes built in the 1960s and 1970s retain the basic organization of the modest Lindenhurst, New York example illustrated at left. They average 45' x 30', although when the family room increases in size and additional bedrooms are incorporated, they range up to 65' x 30' and more.

There are four general approaches to con-

4. See Architectural Forum, "The Cape Cod Cottage, Part 2" (March 1949).



ONE-AND-ONE-HALF LEVEL  
UPSTAIRS/DOWNSTAIRS CONVERSION - SHARED ENTRY

LEVEL OF INVESTMENT : LOW

PRIVACY : MED

UNIT QUALITY : PRIMARY MED

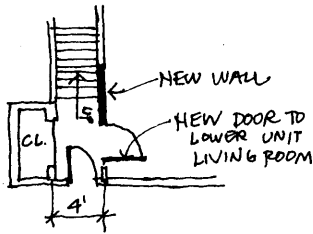
SECONDARY MED

- NO KITCHEN AND CLOSE FOYER
- SHARED ENTRY, POTENTIAL ACOUSTICAL PROBLEM
- AWKWARD THROUGH-CIRCULATION UNLESS 2ND DOOR TO FOYER IS MAINTAINED
- LOSS OF USE OF SECOND BATH AS POWDER ROOM UNLESS 3RD DOOR TO FOYER IS MAINTAINED
- NO OUTDOOR SPACE
- SECOND EGRESS THROUGH WINDOW

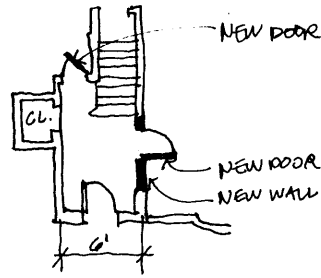
verting a Cape to accommodate a second residential unit. The most obvious conversion, which has been widely employed in Lindenhurst, NY is to create a separate unit on the upper floor by closing off the central stair from the rest of the house and making a small foyer just inside the front door which accesses the two units; this is the traditional organization of the two family house. This type of conversion is facilitated if locked doors are not required between the two units, because the downstairs foyer does not then have to be completely sealed off, and it may even retain more than one door into different zones of the house. For many Capes, particularly the more modest ones where the entry foyer is small, this conversion requires minimal investment: a new wall with a door into the living room of the first floor unit, perhaps a door at the top of the stairs which serves as a front door to the upper unit, and the addition of a small kitchen against the plumbing wall of the upstairs bathroom.

However, when the stair is located back from the front door to create a more generous foyer and a hallway which provides an alternative route to the through-the-living room cir-

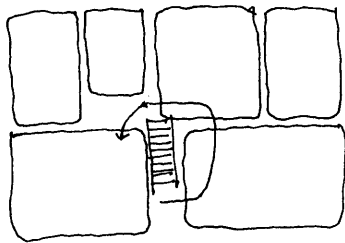




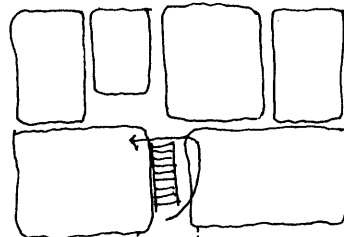
SMALL ENTRY FOYER MAY BE EASILY ENCLOSED WITH ONE DOOR WITHOUT CHANGING CIRCULATION OF FIRST FLOOR



LARGER FOYER REQUIRES TWO DOORS TO MAINTAIN CIRCULATION PATTERN OF FIRST FLOOR



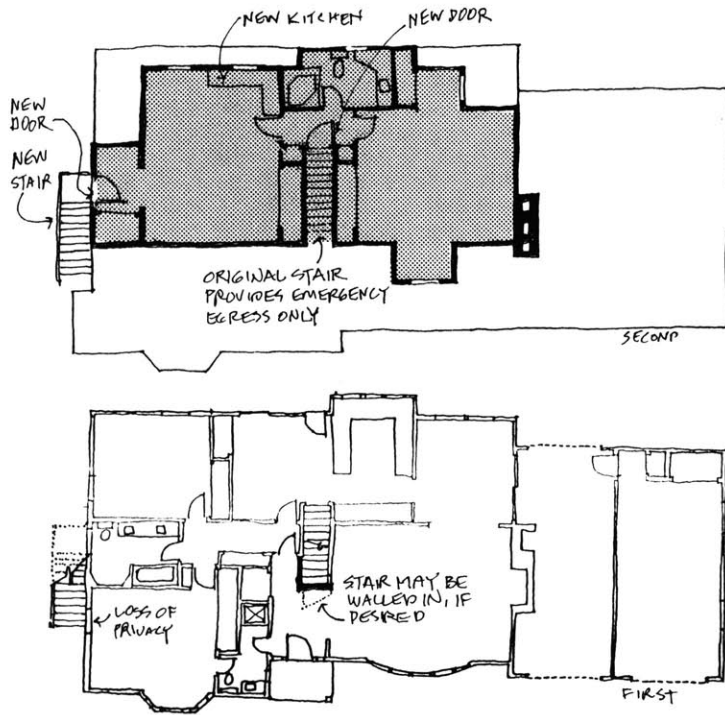
WHEN STAIRS ARE LOCATED TOWARD CENTER OF PLAN TO ENLARGE ENTRY, CIRCULATION MUST PASS THROUGH REAR ROOMS.



WHEN STAIRS ARE LOCATED FORWARD, FRONT ROOMS CAN STILL BE ACCESSED WITHOUT PASSING THROUGH REAR ROOMS.

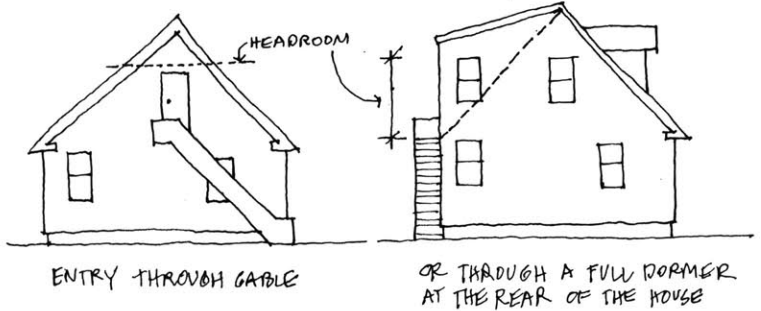
ulation of the small Capes, a conversion which requires a sealed foyer becomes more difficult. The resulting through-circulation is too circuitous unless two doorways can be maintained, though it can be improved if the path through the living room is located adjacent to the stairs rather than cutting diagonally across the room.

The tractability of the Cape Cod's entry is determined by the position of the stair; because it is centrally located, the circulation of the downstairs unit must move around it. The Cape's two-room deep rectangular organization means that in order to move laterally through the rooms, one must pass either in front of or behind the stairs. If the stairs are pushed forward, one can still access the front rooms by passing under the back of the stair; when the stairs are pushed back, one must pass through the back rooms to move around them. It is paradoxical that the smaller entry lends itself more easily to shared use, even though the dimensions of these small entries are barely large enough to accommodate one entry, much less two. An alternative way to enlarge the entry, which does not necessitate pushing



ONE-AND-ONE-HALF LEVEL UPSTAIRS/DOWNSTAIRS CONVERSION - SEPARATE ENTRIES

- LEVEL OF INVESTMENT: MED • ADD KITCHEN + STAIR
- PRIVACY: HIGH • POTENTIAL ACOUSTICAL PROBLEMS
- UNIT QUALITY - PRIMARY: HIGH • DOWNSTAIRS NOT AFFECTED BY CONVERSION
- SECONDARY: • BEDROOM WINDOW MAY BE BLOCKED BY STAIR
- NO OUTDOOR SPACE

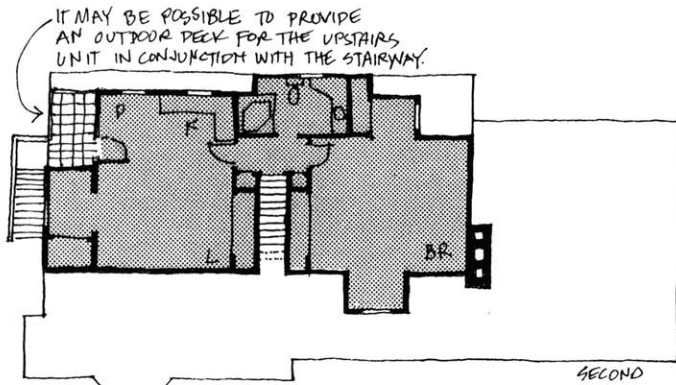


the stairs into the center and blocking the rectangular plan, is to extend it to the front of the house.

An upstairs/downstairs conversion becomes more expensive when a separate entry is necessary; a separate entry may be required by code as a second means of egress, or it may be desired for privacy. This necessitates the construction of an exterior stair, which could then serve as the primary access to the upper unit, while the original stair provides emergency egress or is closed off if it is not used.

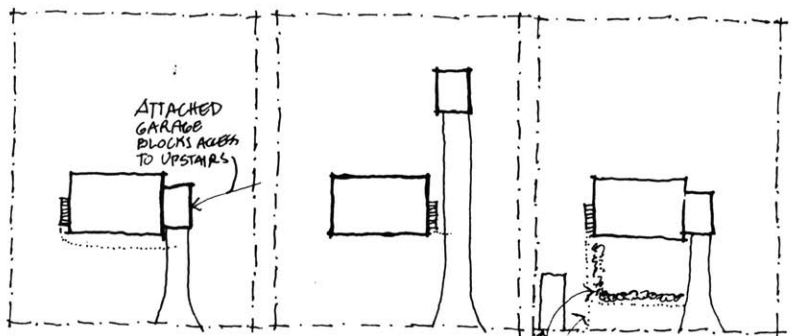
The new stair must be located at a point of the second floor where there is headroom at the entry. This usually means one of the gable ends of the house, though it could also be through a full dormer on the front or back of the house. The prominence of a front stair on the street and the intrusion of backyard privacy which might result from a rear stair may make one of the gable ends a preferred location.

To enable privacy of access to both units, it is desirable to locate the new stair on the service end of the house, so that the upstairs resident can reach it directly from the driveway



ONE-AND-ONE-HALF LEVEL  
UPSTAIRS/DOWNSTAIRS CONVERSION - SEPARATE ENTRIES WITH DECK

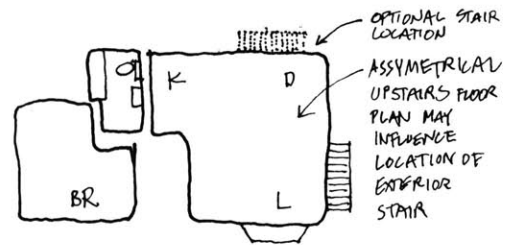
- LEVEL OF INVESTMENT: HIGH • ADD KITCHEN, STAIR, PECK
- PRIVACY: HIGH • POTENTIAL ACOUSTICAL PROBLEM
- UNIT QUALITY - PRIMARY: HIGH
- SECONDARY: HIGH



BATH ACROSS FRONT YARD MAY INTERFERE WITH PRIVACY OF FIRST FLOOR UNIT.

ACCESS TO STAIRS DIRECTLY FROM DRIVWAY.

ACCESS DIRECTLY FROM STREET LANDSCAPED PATH AWAY FROM HOUSE NEW PARKING SPACE.

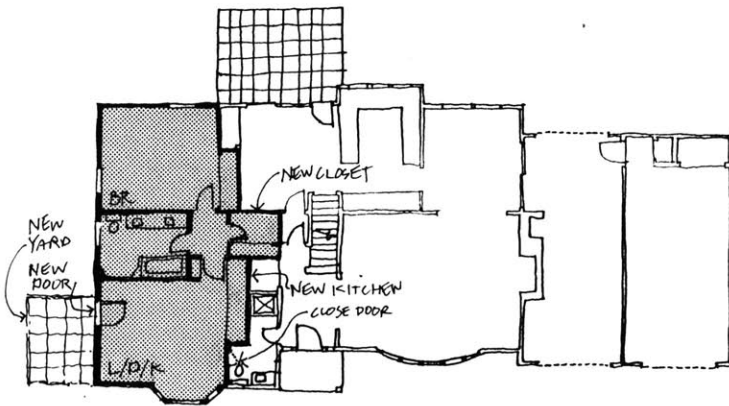


without having to traverse the front or backyard. When the Cape's garage is detached, this presents no problems, but in the case of an attached garage, the stair will probably have to be located on the opposite end of the house because the one story garage blocks access to the second floor. If the stair must be located on the other end of the house, the privacy of the lower unit can be protected if a path across the yard is defined far enough away from the house to ensure the privacy of the downstairs windows or if the stair is accessed directly from the street rather than from the driveway; alternatively, a new parking space might be located at the other side of the lot to service the new entry.

The location of the stairs may be further influenced by the organization of the upstairs floor plan. Specifically, the location of the plumbing wall in the upstairs bath may dictate the location of the kitchen and hence the living dining area; or, if plumbing for the kitchen sink can be tapped into either wall, the larger dimension of one room or the presence of more windows might influence the location of the living area. If the location of the wet wall

does not permit a workable upstairs unit layout, extension of the plumbing from a downstairs bath for the new kitchen sink may be possible. Finally, this choice may be determined by site-specific conditions, such as a desire to orient the living spaces to the south or a workspace to the north, or to take advantage of special views.

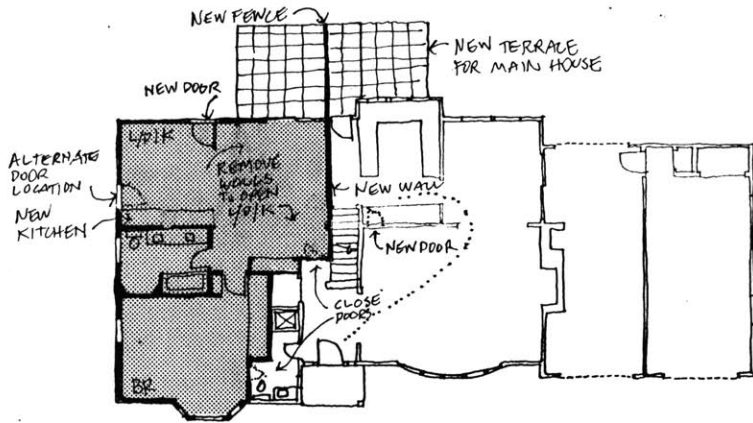
A second approach to locating an accessory apartment in a Cape involves conversion of the downstairs bedrooms. In general, the feasibility of this approach increases as the houses grow in size because the form and location of the main stair become more prominent and consequently more difficult to close off without greatly disrupting the circulation of the first floor. In the smallest capes, such as the Lindenhurst example, which have only one bathroom on the first floor, conversion of the downstairs bedroom zone leaves the primary unit with only one bath located on the second floor.



ONE-AND-ONE-HALF LEVEL  
CONVERSION OF DOWNSTAIRS BEDROOM. 2ND-SEPARATE ENTRIES

<u>LEVEL OF INVESTMENT:</u>	MED	• ADD KITCHEN, DOOR, WALLS
<u>PRIVACY:</u>	HIGH	• CLOSETS PROVIDE ACOUSTICAL BARRIER, EXCEPT FOR POWDER ROOM
<u>UNIT QUALITY:</u>	PRIMARY HIGH	• LIVING SPACES NOT AFFECTED BY CONVERSION
	SECONDARY MED	• L/D/K IS SMALL • INTERNAL KITCHEN

The advantage of a downstairs conversion is that a separate entry, and hence greater privacy for both units, is possible without the necessity of constructing a second stair.



ONE-AND-ONE HALF LEVEL  
CONVERSION OF DOWNSTAIRS BEDROOM ZONE AND FAMILY ROOM -  
SEPARATE ENTRIES

LEVEL OF INVESTMENT: MED • ADD KITCHEN, DOOR, WALLS  
PRIVACY: HIGH • POTENTIAL ACOUSTICAL PROBLEMS

UNIT QUALITY - PRIMARY HIGH • LOSS OF SOME BACKYARD SPACE  
SECONDARY HIGH

LEVEL OF INVESTMENT: MED • ADD KITCHEN, DOOR, WALLS  
PRIVACY: HIGH • POTENTIAL ACOUSTICAL PROBLEMS

UNIT QUALITY - PRIMARY • THROUGH-CIRCULATION UNLESS DOOR TO KITCHEN IS ADDED  
 W/O ADDITIONAL INVESTMENT MED • LOSS OF BACKYARD SPACE, UNLESS SLIDING GLASS DOOR IS REPLACED AND SECOND UNIT ENTRY IS RELOCATED TO ... OF HOUSE.  
 W/ " " HIGH • REORIENT LIVING AROUND L/P/K RATHER THAN FAMILY ROOM

SECONDARY - HIGH

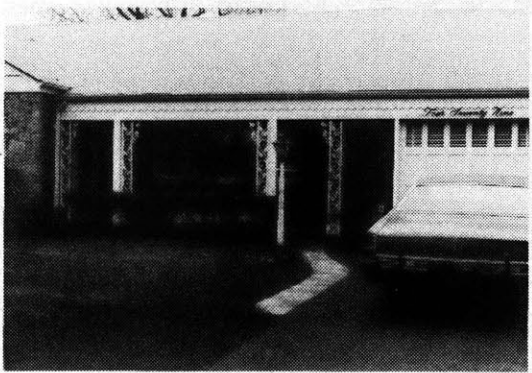
In fact, for a downstairs bedroom conversion, a shared entry makes little sense. The association of any outdoor space with the new unit necessitates an exterior door which can easily double as the entry. Generally, the larger bedroom is located in the front of the house and can become the living area of the new unit with an entry and small garden on the side of the house. If there is a second bath in the bedroom wing, it will be preferable to try to associate it with the larger unit as a powder room, and a shared entry may inhibit this use. Alternatively, the second bath could be converted to a kitchen for the smaller unit, and a shared entry could eliminate the through-circulation in the living area that will be necessary with an exterior entry.

A variation on the downstairs bedroom conversion is incorporation of the family room into the smaller unit. This implies a reversal of the orientation of the unit, with the living spaces now opening out onto the backyard, and creates a much more generous second unit. It also necessitates a restructuring of the living zone of the main house around the living/dining area rather than around the family room, which

may not pose a problem since the living room is often under-utilized space.

A third conversion approach for the Cape is reuse of the garage and service zone, such as a mudroom, laundry, or utility room. This strategy is often feasible with minimum investment and provides maximum privacy if there is a full or half bath located in the service zone. In Lindenhurst, many garages have been converted to additional living space, whether for the main house or for the second unit. Insulating a garage or enclosing a breezeway or porch is a cheap way to gain new living space without building a full addition. This approach may be more appealing than the two internal conversions described above, because it does not impact the internal workings of the main house. Rather the externalities of garage conversions are felt by the neighborhood as a whole because it forces the cars of both units onto the driveway or street.

Given the tractability of the Cape's upstairs, its downstairs bedrooms and its service zone, basement conversions are unlikely. The excavation necessary to provide light and access in order to make the basement livable requires



LINDENHURST, NY  
ALTHOUGH GARAGE  
CONVERSIONS MAY  
BE ATTRACTIVE TO  
THE HOMEOWNER  
BECAUSE THEY DO NOT  
DISRUPT THE NORMAL  
WORKINGS OF THE  
HOUSE, THEY IMPACT  
THE NEIGHBORHOOD  
IN TWO WAYS:  
1) EXTRA CARS ON  
THE DRIVEWAY OR  
IN THE STREET;  
2) THE IMAGE OF  
LIVING IN THE GARAGE,  
PARTICULARLY NOTICE-  
ABLE WHEN THE  
DOOR IS NOT REPLACED  
AND CURTAINS ARE  
VISIBLE IN THE GARAGE  
WINDOW.

NOTE THE VENETIAN  
BLINDS (ABOVE) AND  
THE AIR CONDITIONER  
(BELOW).



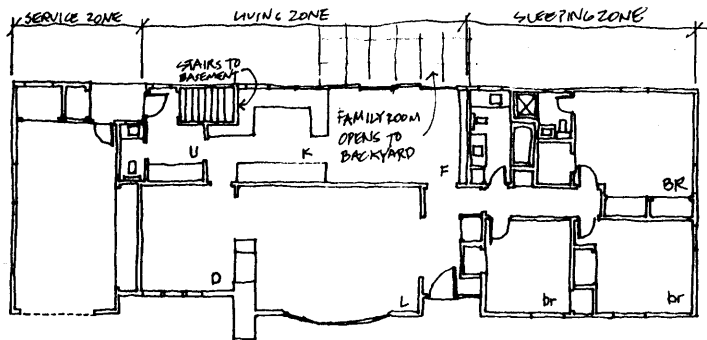
substantial investment and may interfere with the privacy of the first floor. Possibilities for basement conversions are described under the discussion of one-level ranch houses and the ideas presented in that section could be applied to a Cape basement as well (see pp. 31-32).

In sum, if one maintains the assumptions stated earlier about autonomy, a primary and secondary unit, and minimal exterior alterations, there are four evident approaches to converting a one and one-half level house. If one relaxes these assumptions, other conversion strategies become possible. If the kitchen may be shared, private living and sleeping zones could still be provided for different households. Alternatively, duplex units of similar size could be provided, or small additions may enable conversion of a bedroom zone where this is not otherwise possible.

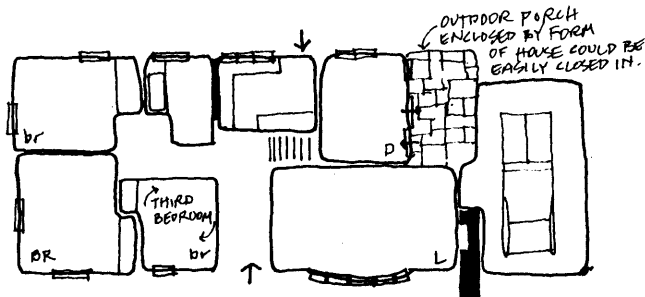
The factors which influence the tractability of the one and one-half level house and will determine the level of investment required for conversion include:

- the dimensions and position of the entry

- the location of the central stair relative to the front door and to the circulation to front and rear rooms
- the choice of whether or not to add an exterior stair
- the distribution of bathrooms on the first floor



TYPICAL MEDIUM-SIZED ONE-LEVEL RANCH HOUSE  
(ADAPTED FROM MASTER PLAN SERVICE P-919)



TYPICAL THREE-BEDROOM RANCH.

## THE ONE-LEVEL RANCH

The antecedents of the ranch house, which became the predominant suburban house type in the late 1940s and early 1950s,<sup>5</sup> can be traced to the Spanish patio houses of the Southwest. While the Cape design was motivated by a desire to keep the elements out, the intention behind the one-level ranch house, as originally formulated by F. L. Wright, was to bring the outdoors in. Ironically, the two house types, as they were built after the war, bear a striking resemblance to one another.

The ranch house can be seen as a large Cape plan without a central stair leading to additional bedrooms and a bath. The absence of the central stair makes the downstairs plan more flexible and often a third bedroom is added to the typical two-bedroom plan of the Cape. Because the ranch is not constrained by the presence of a second floor, its plan organization is freer to move, despite its small square footage. Dimensions of ranches with rectilinear plans range from 50' x 24'

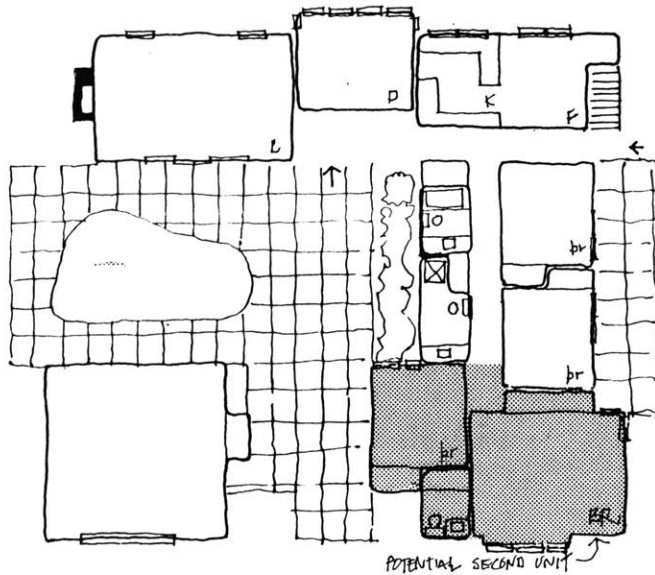
5. See House & Home, "Fastest Selling California Ranch Houses by Cliff May" (October 1952); and House & Home, "Look at What's Selling in Ohio!" (January 1953).



to 100' x 34' and more; they average 85' x 30'.  
Master Plan Service describes the ranch:

Its great advantage is the absence of steps to climb or descend, except for a basement.

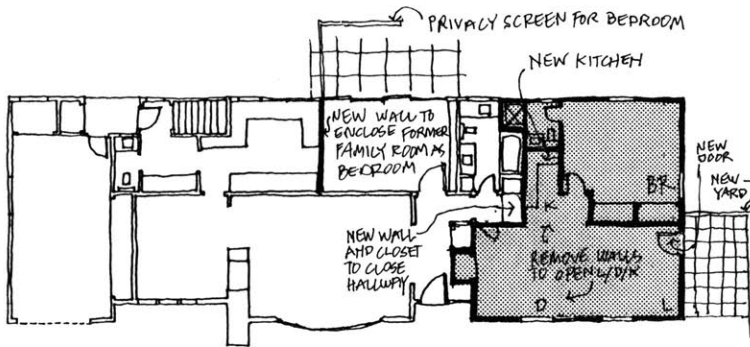
It is best adapted to the modern indoor-outdoor living tradition--porches, patios, terraces or planters can be designed for any room. [no page number]



SPRAWLING RANCHES WITH ISOLATED WINGS MAY  
LEND THEMSELVES TO CONVERSION MORE EASILY THAN  
THOSE WITH COMPACT RECTILINEAR PLANS

Often in large ranches the precedent of the patio house is clear and different zones are located in separate wings which shape an outdoor living area. In these houses it may be a simple matter to isolate one of these wings as a separate unit, depending on the distribution of plumbing. Although in large ranches with sprawling wings it may be possible to convert a wing or the end of a wing to a second unit, in the more typical medium-sized ranch with a rectilinear plan, this is not always the case. There are three general approaches to providing a second unit in a ranch without substantial new construction: conversion of the bedroom wing, the service wing, or the basement.

Conversion of the bedroom wing depends on provision of an alternate sleeping area and at least one bath that can serve the whole house.



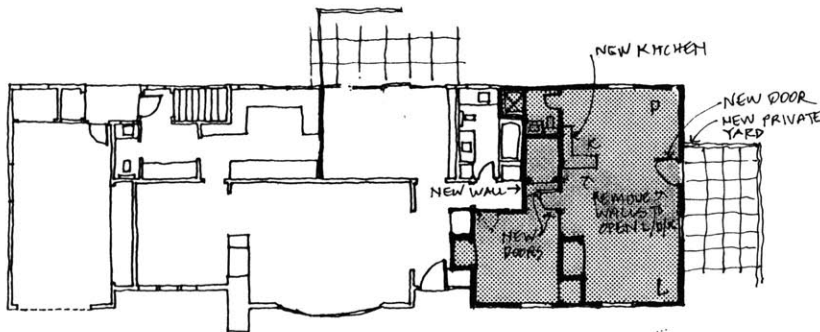
ONE-LEVEL  
CONVERSION OF BEDROOM ZONE - SEPARATE ENTRY

LEVEL OF INVESTMENT: MEO • ADD KITCHEN, DOOR,  
WALLS

PRIVACY: HIGH • CLOSETS ADD  
ACOUSTICAL PROTECTION

UNIT QUALITY: PRIMARY HIGH

SECONDARY MEO • DARK INTERNAL  
KITCHEN



ALTERNATIVE - REVERSE ORIENTATION OF SECONDARY UNIT

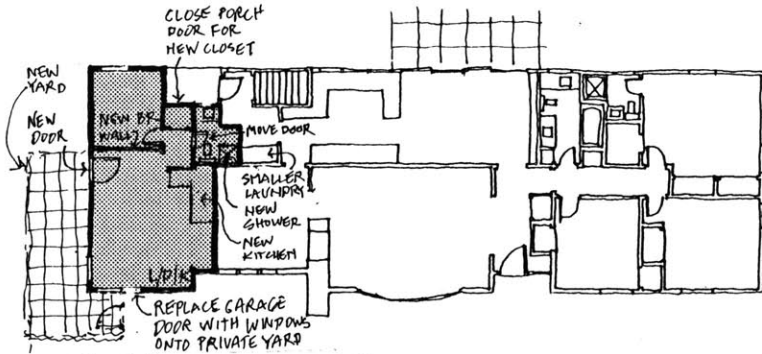
UNIT QUALITY: SECONDARY MEO • AWKWARD THROUGH-  
CIRCULATION TO  
BATHROOM

THE TRADEOFF BETWEEN AN INTERNAL KITCHEN  
AND AWKWARD CIRCULATION IS TYPICAL OF  
THE KIND OF CHOICES THAT ARE INVOLVED  
IN PLANNING A CONVERSION.

Two options are available: (1) reorganization of the living area of the house to incorporate a bedroom and bath; or (2) isolation of a bedroom and bath from the bedroom zone of the house for the larger unit. The largest bedroom with private bath is almost always located on an outside corner of the house away from the living area so it becomes part of the second unit.

This may necessitate that the bedroom closest to the main house, which is usually the smallest of the three, be enlarged in order to provide a generous sleeping area for the main house. The dimension of the former master bedroom is generally sufficient to accommodate the living area of the new unit, but because the bathroom is often at an outside edge of this larger of the two remaining rooms, it may not be possible to arrange a unit layout without through-circulation between the new bedroom and bath.

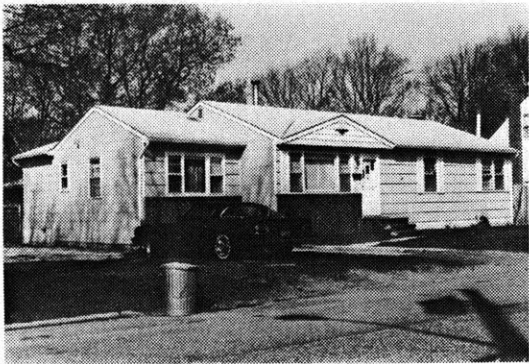
The choice of a separate or shared entry will be influenced by the location of the bedroom(s) for the main house, which may prohibit the shared option. The ease with which an exterior door can be added to the side or rear of the bedroom may make a separate entry preferable.



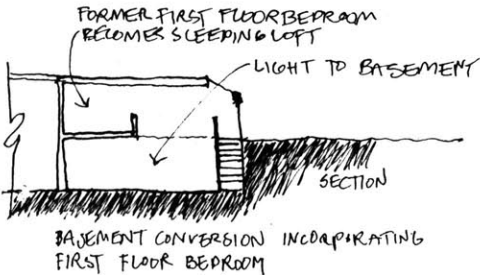
ONE-LEVEL  
CONVERSION OF SERVICE ZONE

- |                               |                  |                                    |
|-------------------------------|------------------|------------------------------------|
| <u>LEVEL OF INVESTMENT</u>    | MED              | • ADD KITCHEN, SHOWER, DOOR, WALLS |
| <u>PRIVACY</u>                | HIGH             | • POTENTIAL ACOUSTICAL PROBLEM     |
| <u>UNIT QUALITY - PRIMARY</u> | HIGH             | • UNAFFECTED BY CONVERSION         |
|                               | <u>SECONDARY</u> | • INTERNAL KITCHEN                 |

→ CARS MUST PARK IN DRIVEWAY



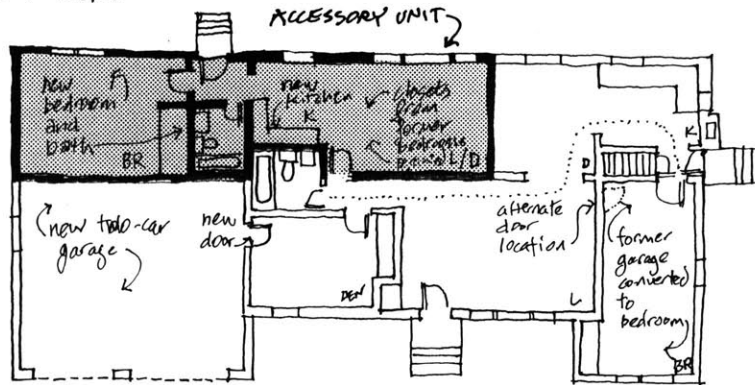
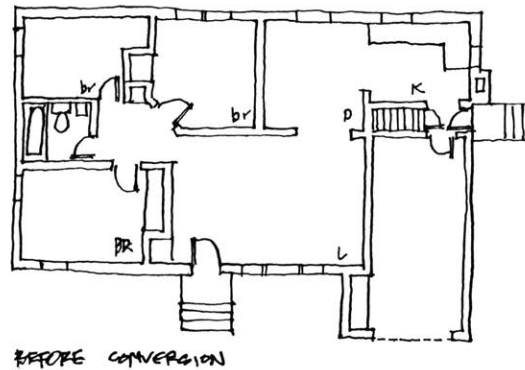
ONE-LEVEL RANCH  
LINDENHURST, NY  
GARAGE CONVERSION



The main living spaces of the medium-sized ranch with three to four bedrooms do not lend themselves to conversion as easily as the Cape's with its two sleeping zones. The fact that the ranch does not have the Cape's two bedroom zones, one of which can be easily isolated without affecting the rest of the house, makes garage and the more expensive basement conversions more attractive for the one-level house because often no other options are available. When a full or a half bath is located near the garage and/or breezeway, conversion of the service zone may provide maximum privacy for minimum investment.

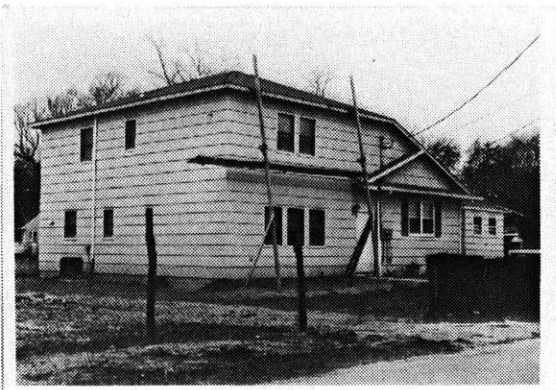
Possibilities for a basement apartment may also be worth exploring. Because the ranch is spread out on one level, its footprint is larger than a Cape of the same size, which means that it has more linear feet of perimeter to accommodate an exterior basement entrance without sacrificing the outdoor privacy of the primary unit. Exterior basement stairs are often located to the rear of the bedroom wing, and a first floor bedroom may be incorporated into the second unit to provide a more generous access and more light to the basement. Further-

IN THIS EXAMPLE, THE ACCESSORY UNIT MONOPOLIZES THE BACKYARD EDGE, WHICH IS SURPASSING BECAUSE A POOL IS LOCATED THERE. THE APARTMENT HAPPENS TO BE OCCUPIED BY THE DAUGHTER AND SON-IN-LAW OF THE HOMEOWNERS, SO ITS PRIME LOCATION DOES NOT CREATE THE PRIVACY CONFLICT WHICH WOULD RESULT IF THE UNIT WERE REMOVED. ALSO, THE "AFTER" PLAN OF THE PRIMARY UNIT HAS AN UPWARD THROUGH-CIRCULATION FROM BEDROOM TO BATH. AN ALTERNATE BEDROOM DOOR LOCATION IS SHOWN.



AFTER CONVERSION

RANCH HOUSE, UNDERHURST, NY (documented in field research).  
IN THIS CONVERSION OF A TYPICAL THREE BEDROOM RANCH, A SECOND UNIT IS ADDED BY BUILDING A NEW BEDROOM, BATH AND GARAGE, INCORPORATING THE FORMER GARAGE INTO THE MAIN HOUSE.



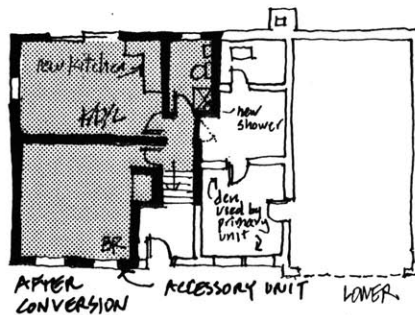
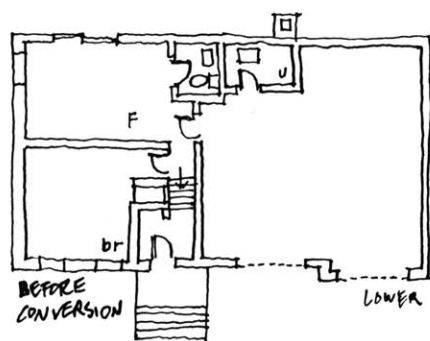
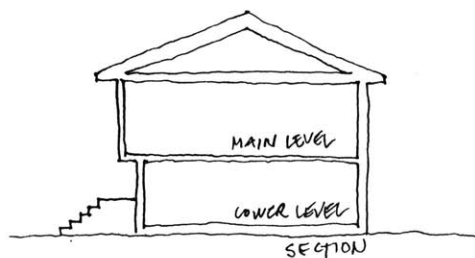
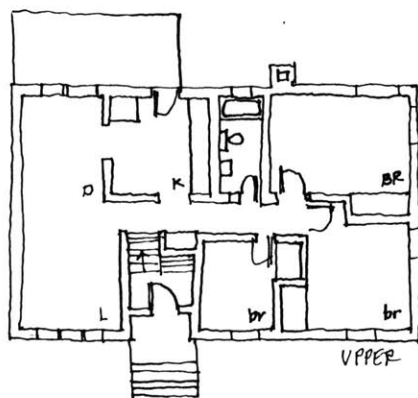
THIS CONVERSION IS AN INDICATION THAT THE FLEXIBILITY OF WOOD-FRAMED CONSTRUCTION MEANS THAT ANYTHING CAN HAPPEN. HERE, A NEW TWO-STORY UNIT IS ADDED TO A ONE-LEVEL RANCH HOUSE.

more, the ranch's interior stairs to the basement, which in the Cape are generally centrally located below the main stair, are often located near the service zone and may be able to be organized as an entry or second egress.

In sum, the features of the one-level house which determine its tractability for conversion include:

- the distribution of plumbing
- the possibility for creating a bedroom zone for the primary unit
- the presence of easily isolatable wings with plumbing

The typical medium-sized ranch, because of its compact organization, is less tractable for internal conversions than the Cape with its two discrete sleeping zones. However, two Lindenhurst, NY examples show that if one relaxes the assumptions about additions, the universe of possibilities is greatly expanded.

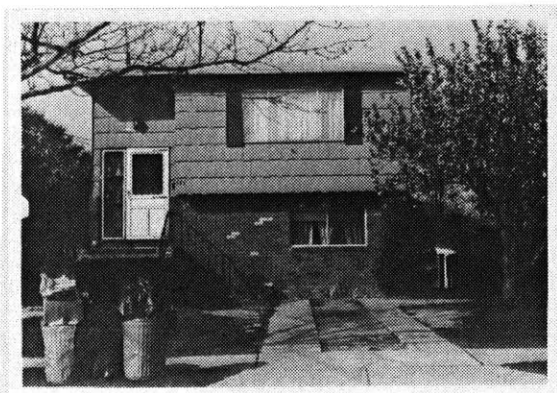


#### BI-LEVEL HOUSE, LINDENHURST, NY (documented in field research)

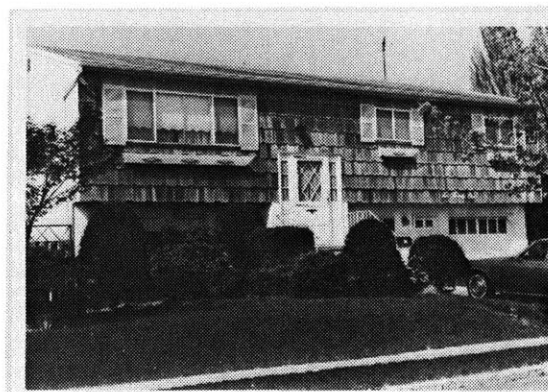
ONLY THE ADDITION OF A KITCHEN AND THE EXPANSION OF THE LAVATORY TO INCLUDE A SHOWER IS NECESSARY TO CREATE A SEPARATE UNIT ON THE LOWER LEVEL OF A RAISED RANCH.

#### THE BI-LEVEL

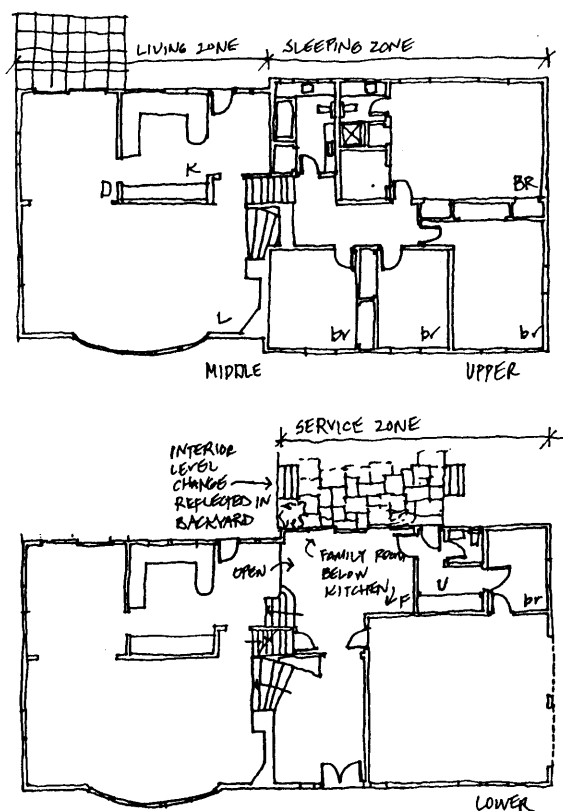
A descendant of the ranch house, the raised ranch, inherits none of the properties of its parent, when it comes to convertability; in this respect, it has more in common with the split level type than with the one-level ranch. The raised ranch may be the most easily convertible house type. With its main living level located a full story above grade, its basement, which almost always includes a second bath, needs only the addition of a small kitchen to become a second housekeeping unit. Many raised ranches have been built in Lindenhurst, NY; the high degree of tractability of the raised ranch is one reason why numerous conversions have occurred in Lindenhurst.



NARROW-LOT RAISED RANCH WHERE GARAGE DOOR HAS BEEN REPLACED WITH WINDOWS.



RAISED RANCH WITH ENTRY TO LOWER LEVEL SECOND UNIT VISIBLE FROM THE STREET.



TYPICAL MEDIUM-SIZED THREE-LEVEL SPLIT LEVEL  
 (ADAPTED FROM MASTER PLAN SERVICE #933)

### THE THREE-LEVEL SPLIT LEVEL

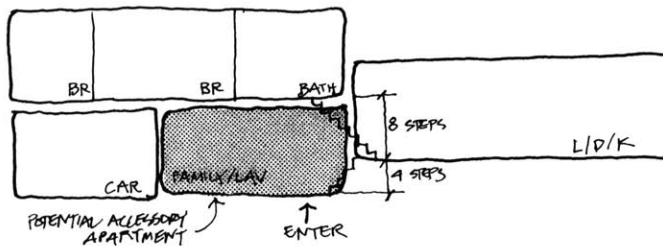
A 1950s home magazine describes the split level house as "a revolt against the ranch":

The surprising willingness of housewives to climb stairs is clearly a reversal of a national trend. After the war anything but a one-story house was a dead pigeon in a good many towns. [House & Home, December 1952, p. 117]

Walker (1981) explains the split level as an attempt to separate "the formal, informal, and sleeping areas of the house" [p. 260]. Many ranch houses had a formal living room, a family room adjacent to the kitchen and a below-grade recreation room. The split level restructured this arrangement by grouping kitchen, dining and living room on one floor, and combining the former family and rec rooms into a single space located a few steps down from the kitchen. This new room was more clearly differentiated from the formal living spaces of the house and from the kitchen than its predecessor, the family room, and it improved the status of the former basement rec room by bringing it to grade for light and air.

The 1952 House & Home article continues:

For many housewives the split-level is obviously a return to their idea of what a house should be: a kitchen, dining and living room on one floor with bedrooms separate from the living quarters and upstairs where no one can peak in the windows. The utility room with its furnace and the laundry room with washer and dryer are down six steps. And there is usually a finished or partly finished room suitable for many purposes: TV, study, guest bedroom, sewing room, workshop, children's play area. The garage is warm in the winter and is part of the house, not tacked on one end. The split-level seems to have all the advantages of a real two-story house but with only half a dozen short steps to climb between levels. [p. 117]

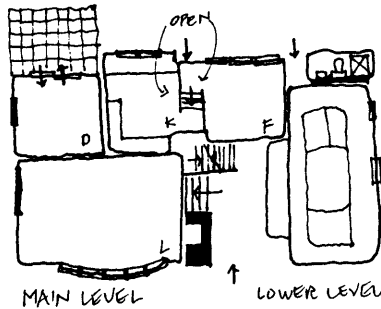
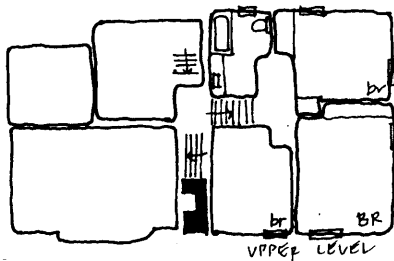


SECTION OF TYPICAL SPLIT LEVEL HOUSE

The plan of the basic split level house can be compared to a ranch or first-floor Cape plan in which the living and sleeping zones have been sheared apart vertically. The degree of connection between the levels varies according to the relationship between levels, the organization of the stairs and the degree of closure built at the intersection. Generally, the kitchen is connected to the family room below, and occasionally the upper-level room closest to the living zone is open to below and used as a study.

The simplest split level designs have three





TYPICAL THREE-BEDROOM SPLIT LEVEL

bedrooms and a bath on the upper level, similar to the basic ranch organization, a kitchen/dining/living intermediate level, and a lower level which includes a garage, the family/rec room, and a lavatory and laundry. The plumbing in the lower level may be located directly below the upstairs bath, though often this is not the case. The location of the entry and the treatment of exterior landscaping in relation to the interior level changes vary. Generally the entry is close to the garage and driveway. It may be located at the intermediate living/dining/kitchen level or at the lower service level, and usually the level change at the front yard is achieved through berming, while in the rear, terraces for the two levels are often joined by steps.

Master Plan Service describes the genesis of this new house type:

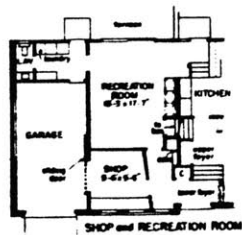
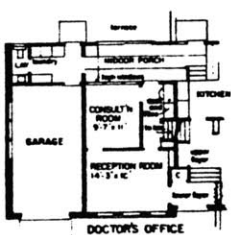
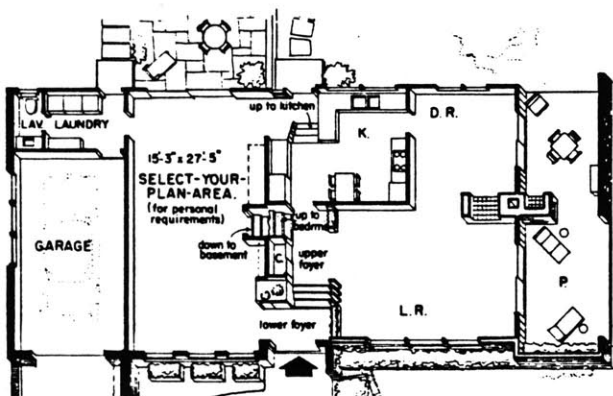
[The] split-level residence is the result of national statistics of the living requirements of the average homeowner throughout the nation. . . . Within its modest size is packed the most livability possible in any home of comparable size. Beyond the usual sleeping, living and service areas, this home offers a bonus space under the bedroom level. It gives the happy homeowner a family room, den



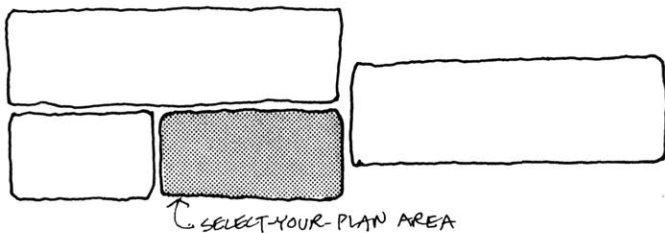
or office, mud-utility room, bath and attached garage. [description of P-677]

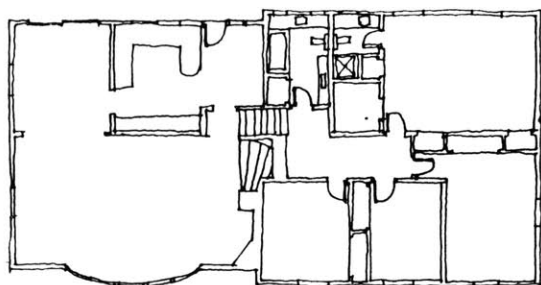
Although this particular list does not include a separate apartment, many of the Master Plan Service sample plans illustrate this option for the new third level. Its Plan 663 offers four alternative plans for the lower service zone, which it labels the "select-your-plan-area."

In most split levels, an apartment may be introduced on the lower level, though the quality of the unit may vary according to the location of the lavatory and its relationship to the garage. When the garage is attached to the rectangular form of the house rather than built in, an apartment with differentiated living and sleeping zones can usually be achieved without through circulation to the bathroom. However, when the garage is included in the lower level, conversion possibilities may be limited to a one-room studio unless the garage is incorporated into the unit. Entry to the unit may be through a shared foyer which in most split levels leads directly to stairs to the lower level, or through a door at the rear or the side of the house. The grade change

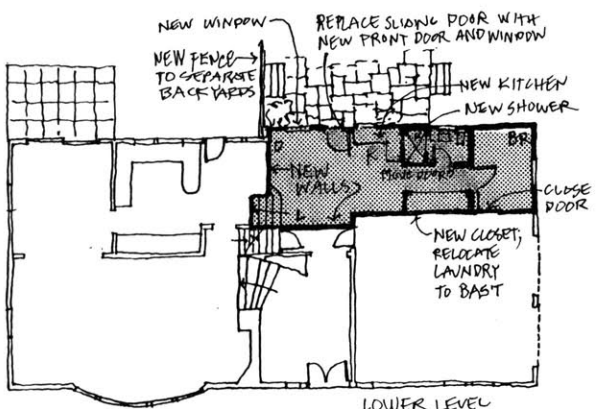


MASTER PLAN SERVICE P-663  
ALTERNATIVE USES FOR LOWER LEVEL





UPPER LEVEL



LOWER LEVEL

### THREE-LEVEL LOWER LEVEL CONVERSION

#### LEVEL OF INVESTMENT

#### PRIVACY

HIGH

#### UNIT QUALITY - PRIMARY

HIGH

#### SECONDARY

MED

#### W/ ADDITIONAL INVESTMENT:

HIGH

- ADD KITCHEN, SHOWER, WALLS

- LAUNDRY TO BASEMENT
- REDIRECT LIVING AROUND H/D/K RATHER THAN FAMILY

- SMALL DIMENSIONS
- INCORPORATE PART OF GARAGE

in the backyard lends itself to a definition of two private outdoor spaces. Because the lower level may be accessed directly from the driveway, the issue of site privacy which occurs in both the Cape and the ranch is not a problem. This lower-level conversion requires no exterior alterations and affords substantial privacy to both units with minimum investment, though some closure may be required between the kitchen and lower-level family room.

A closer examination of the split level house reveals that the organization of three vertically discrete zones does not necessarily increase its overall tractability for accessory apartments. The layout of the bathrooms in the average split level does not facilitate alternative conversion approaches. In all but the largest split levels, the intermediate kitchen/dining/living level does not include a bathroom; conversion of this level without new construction only becomes feasible if a bathroom (and perhaps a bedroom as well) from the upper or lower level can be combined with the main living level. If the bedroom level contains a bath which is located toward the center of the house, a two-level primary unit

may be possible; the remainder of the bedroom level could be converted into a small second unit, or it could be combined with part of the lower level to make a two-story unit.

Alternatively, the main level could incorporate a bedroom and bath from the lower level and leave the entire bedroom zone as the second unit; this is only feasible if the lower level lavatory can be organized to serve the main house, which in many cases is not feasible.

Entry to the second unit on the bedroom level would probably necessitate exterior stairs because in most split levels, one must enter the living room to reach the stairs to the upper level, unlike most Capes where one can go directly upstairs from the entry way. However, the split level has an advantage over the Cape in that a half-flight of exterior stairs may be all that is necessary depending on how the site is graded.

In sum, the factors which influence the tractability of the split level house and will determine the level of investment required to create an accessory apartment include:

- layout of the lower level, particularly the position of the lavatory relative

to the garage

- degree of openness between the kitchen and family room
- location of the entry
- treatment of the level change and landscaping in the backyard
- location of the upstairs baths
- position of interior stairs to bedroom level
- location of bedroom level relative to grade

If assumptions are relaxed, it might be possible to convert a split level to three apartments or to two units of equal size.

## SUMMARY

A perhaps surprising conclusion of this study of three postwar house types is their similarity. Although the one-and-one-half level is differentiated by its upstairs bedroom zone and the three-level by its lower service zone, the organization of the main living levels of the three houses is remarkably similar, with the exception of the vertical circulation:

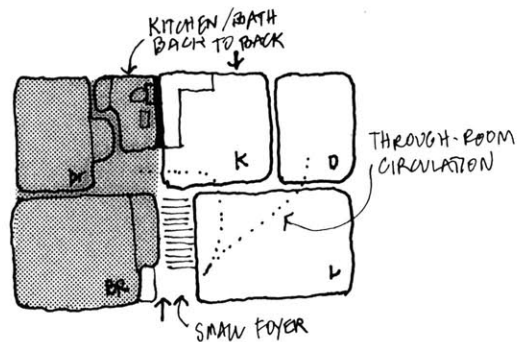
- ° the one-and-one-half level has a central stair
- ° the one-level replaces the stair with a small third bedroom
- ° the three-level has centrally located stairs, usually oriented perpendicular to the entry

While the one-and-one-half level and the three-level can almost always accommodate a second unit in their "special zones," the conversion potential of the main living level of the three house types depends primarily on the following factors: the location of the entry and the horizontal and vertical circulation, and the distribution of plumbing.

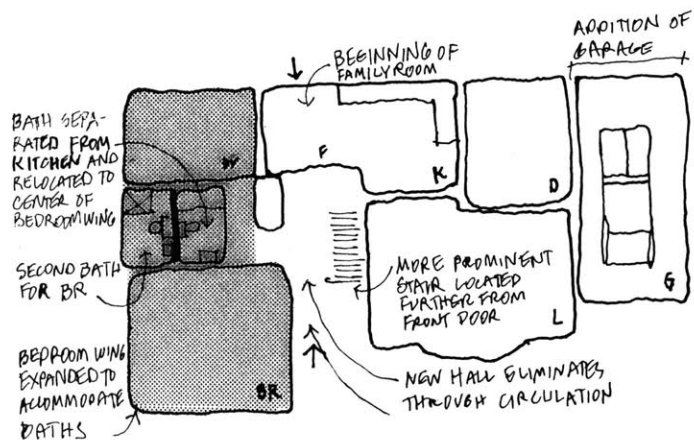
The diagrams on the next page trace the

evolution of the main living level of one of these postwar houses, the one-and-one-half-level Cape, as builders responded to the demand for larger houses. The "permanent" features which may influence the choice of a particular conversion strategy are highlighted.

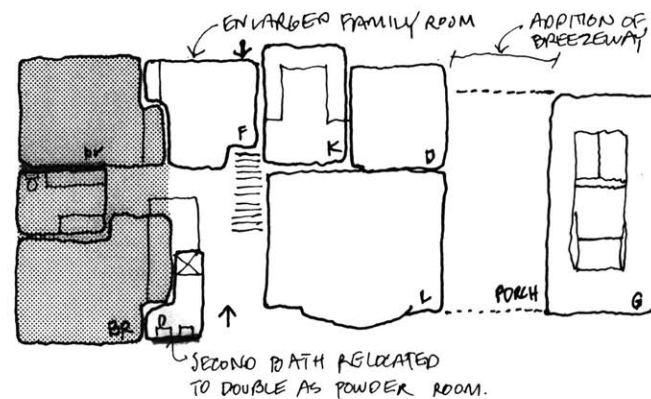
In sum, one may conclude that large postwar houses are highly tractable for accessory apartments. Despite the conservative assumptions made at the outset of this investigation, most houses could accommodate the introduction of a second unit without new construction. The bi-level and the split-level, with their lower service zones, may be the most easily converted without affecting the workings of the main house. The one-and-one-half level offers more possibilities for conversion because of its two bedroom zones. The compact one-level ranch house may be more difficult to convert, but large ranches are often characterized by sprawling wings which are easy to convert. The plans of conversions that were documented through field research show that many more conversion strategies are possible if one relaxes the assumption about additions.



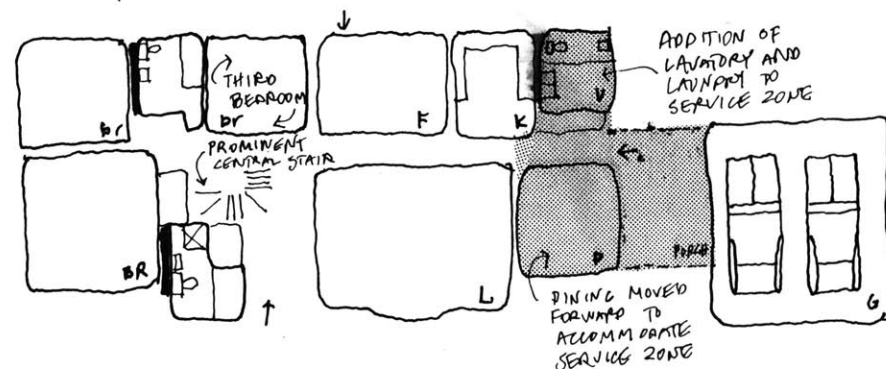
1. CONVERSION OF A HOUSE WITH THIS ORGANIZATION OF THE MAIN LIVING LEVEL IS NOT POSSIBLE UNLESS THERE IS A BATH ON ANOTHER LEVEL THAT CAN SERVE THE PRIMARY UNIT.



2. HERE, CONVERSION IS ONLY POSSIBLE IF BOTH BATHS ARE INCORPORATED INTO THE SECOND UNIT; OTHERWISE, THERE IS NO CONNECTION BETWEEN THE TWO ROOMS. ONE BATH MAY BE CONVERTED TO A KITCHEN.



3. IN THIS HOUSE, CONVERSION IS REAPPLY FEASIBLE WITHOUT AFFECTING THE MAIN LIVING LEVEL. THE SEPARATION OF THE TWO BATHS INCREASES THE TRACTABILITY OF THIS HOUSE.



4. THE ADDITION OF A LAUNDRY TO THE SERVICE ZONE PROVIDES A DIFFERENT CONVERSION OPTION. IN THIS PARTICULAR EXAMPLE, AN ACCESSORY UNIT CAN BE CREATED WITHOUT CONVERTING THE GARAGE BY ENCLOSING THE BREEZEWAY.

## Conversion Design Issues: Hiding or Guiding Neighborhood Change

This chapter will focus on four types of visual changes which may manifest themselves on the outsides of houses when a second unit is introduced: entries, separate stairs, private outdoor spaces, and additional cars. Solutions which require minimal change are explored, as well as those which involve substantial transformation of the suburban streetscape. The regulatory questions of how much change should be permitted and how change can be guided are discussed in the following chapter.

The above examination of the Cape, ranch and split level houses reveals that in these three house types conversions may occur without significant exterior alterations. Entries may be shared, necessitating no new doorways or paths. Even if they are not shared, additional doors may be located at the side or rear of houses so that they do not impose on the front

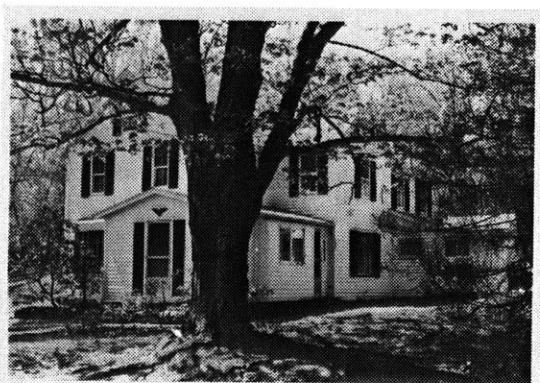
yard. Likewise, stairs can be located and designed to be quite unnoticeable from the street, and footpaths to access these hidden entryways can be made so that they are difficult to distinguish from paths into the backyard. Provision of outdoor space is a luxury that need not necessarily accompany a second unit; if it does, new decks, porches, or fenced gardens, like entryways or stairs, may be located to the rear to avoid any tell-tale signs on the street. It is only the car of the second unit occupant which skillful design may not be able to hide from view.

However, despite the thrust of recent conversion ordinances, minimal exterior change is not the only approach to regulating accessory apartments. Greater numbers of apartments and perhaps more desirable units may be created if certain standards are relaxed. Incremental changes which are compatible with the character of a residential area may enhance rather than detract from neighborhood quality. The following design explorations illustrate the types of changes that may occur in an attempt to dispel the fear of change that is reflected in many accessory apartment regulations.

## ENTRY

Entries to converted single family houses may be shared or separate; the entry is the only indoor space that may reasonably be shared by two otherwise autonomous households. Shared front doors are common in two family houses; usually each household has a second locked door which opens off the shared foyer, which is of modest dimensions and remains a neutral zone, little personalized by either household. The act of sharing is minimized. This type of conversion is facilitated if the stairs which lead to discrete zones of the house (above in the case of the Cape, or below in the case of the split level) are located close to the front door so that they may be easily isolated from the downstairs unit.

An alternative approach is to enlarge the entry and encourage active sharing; this might be particularly appropriate where the entry is designed in such a way as to make it difficult to isolate from the rest of the house. Closets and other storage space could be shared, messages could be posted, and plants or furniture could embellish this shared territory; it could become a place rather than a corridor



WESTON, CT  
THE ENTRY TO THIS  
HOUSE WAS ENLARGED  
TO ACCOMMODATE  
AN UPSTAIRS/DOWN-  
STAIRS CONVERSION.



SIDEVIEW OF SAME  
HOUSE, THE SMALL  
PROJECTING ADDITION  
IS A BATHROOM THAT  
WAS ADDED FOR THE  
NEW DOWNSTAIRS  
MASTER BEDROOM.

to pass through.

While a shared entry may be preferable because it requires minimal investment, it does involve a loss of autonomy which may or may not be acceptable, depending on the nature of the relationship between the two households. Often when the apartment is occupied by a relative, both a shared and a separate entry may be desirable. Although such a relative is generally presumed to be an older person--hence the term mother-in-law apartment, this arrangement is equally viable for a teenager or for post-college children who are "flying back to the nest" (Newsweek April 7, 1980).

Minor alterations may make separate entries possible, and a second entry may be designed in such a way as to be subordinate to the main entrance; it does not have to read as an entry to a separate household. Yet it should nevertheless be inviting and fulfill the image of entry for the second unit occupant; the tenant or his visitors should not have to feel that they are relegated to the back door. In many suburban houses, both the front and back doors are visible from the street.

There are numerous ways that separate but

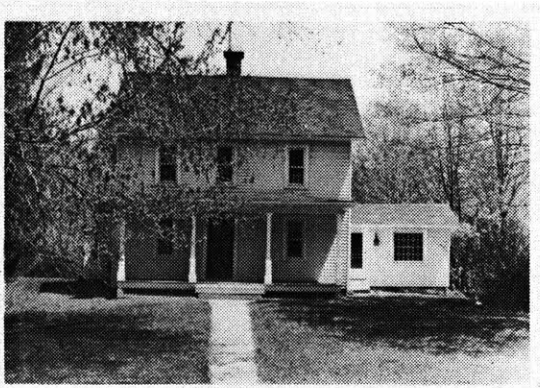


TWO-LEVEL COLONIAL,  
OLD GREENWICH, CT  
HERE BOTH FRONT  
AND BACK DOORS  
ARE VISIBLE FROM  
THE STREET, YET THE  
PROMINENT CENTRAL  
LOCATION OF THE MAIN  
ENTRY CLEARLY DIS-  
GUISES IT FROM THE  
REAR DOOR JUST TO  
THE RIGHT OF THE  
GARAGE.  
THE BACK DOOR  
COULD SERVE AS AN  
ENTRY TO AN ACCESSORY  
UNIT LOCATED ABOVE  
THE GARAGE.

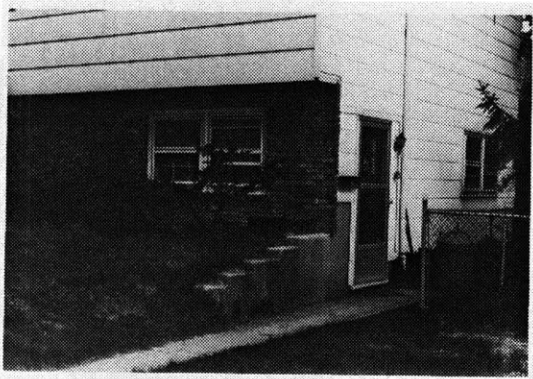


ONE-AND-A-HALF-  
LEVEL CAPE  
LARCHMONT, NY  
HERE, THE ENTRY TO  
THE SECOND UNIT,  
ALTHOUGH IT IS PERPEN-  
DICULAR TO THE MAIN  
ENTRY, NEVERTHELESS  
COMPETES WITH IT,  
DUE TO ITS PROXIMITY  
AND SIMILAR FORM.

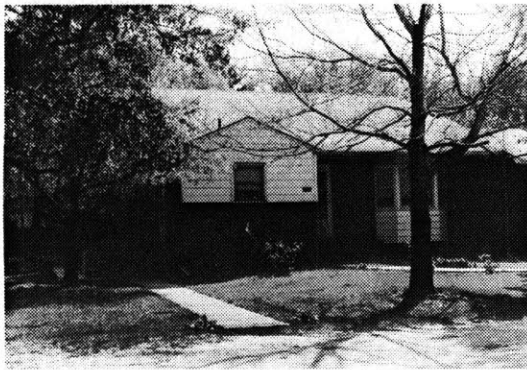




1802 HOUSE  
WESTON, CT  
ENTRY TO THE SECOND  
UNIT IS THROUGH THE  
SMALL, RECESSED  
VOLUME TO THE  
RIGHT. (SEE OTHER  
VIEWS, PP. 51, 53)



01-LEVEL  
RAISED RANCH  
LINDENHURST, NY  
SIDE ENTRY TO  
LOWER LEVEL  
UNIT.

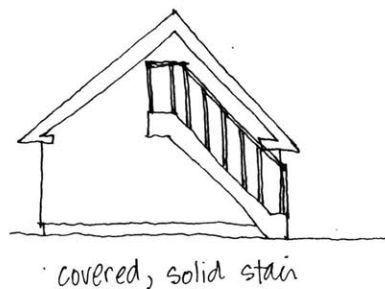
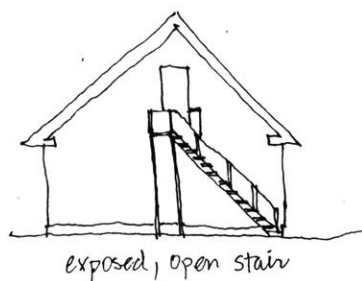


ONE-LEVEL RANCH,  
LINDENHURST, NY  
PATH TO SIDE ENTRY.

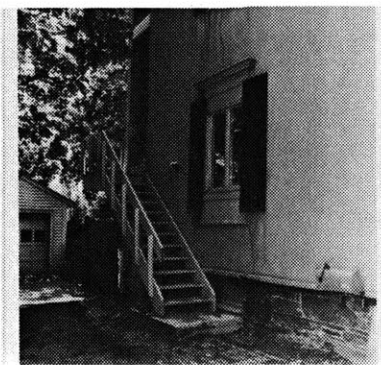
non-competing entries can be achieved. Both households may share a porch, and the doors may be located at opposite ends or around the corner from one another to increase privacy; or one door may lead into a smaller building volume. Finally, a separate entry may be located at the side or rear of the house, and a path or small gate may suggest a passage. Such a passage may be particularly inviting if it is well-defined by a fence and associated with a small garden.



LINDENHURST, NY  
TWO ENTRIES  
ARE LOCATED AROUND  
THE CORNER FROM  
ONE ANOTHER OFF  
A SHARED PORCH.



WESTON, CT  
AN OVER-THE-GARAGE APARTMENT WITH AN INTERNAL STAIR. NOTE ALSO THE PRIVACY OF THE SECOND ENTRY, ACCESSIBLE DIRECTLY FROM THE DRIVEWAY.



CAMBRIDGE, MA  
AN EXPOSED, OPEN STAIR WHICH BECOMES COVERED WHEN IT TURNS THE CORNER AT THE LANDING. NOTE ALSO THE SECOND MAILBOX AT RIGHT. (SEE P. 43 FOR ANOTHER VIEW)

## SEPARATE STAIRS

Together with additional cars, exterior stairs are the most visible outward sign of accessory apartments. Access to the upper floor of a Cape or a Colonial or the bedroom area of a split level may necessitate an exterior stair. Separate stairs may take many forms:

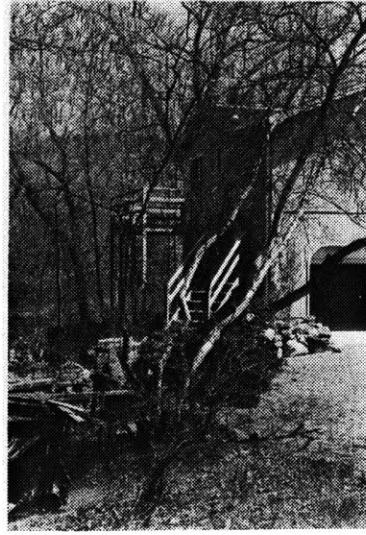
- attached or built-in
- covered or exposed
- solid or open treads and handrails
- visible or hidden from the street

In terms of level of investment, stairs run the gamut from attached, exposed, open treads which are visible from the street to new internal stairs which are not apparent from the exterior. The former are quite common, while the latter are generally only feasible where a reduction of the square footage of the house does not pose a problem, such as when space above the garage is converted and a stair may be introduced without sacrificing the use of the garage.

Christopher Alexander (1977) extolls the virtues of open stairs because they afford privacy to the occupants of both households



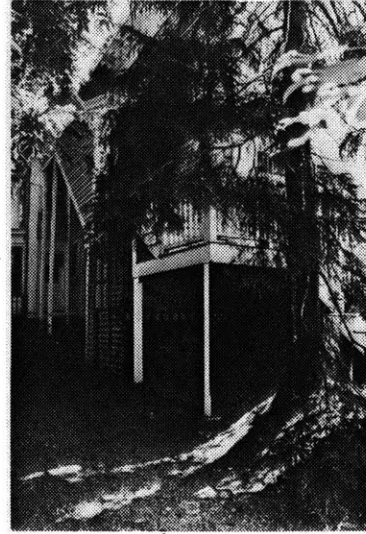
LINCENHURST, NY  
AN UNPAINTED, EXPOSED STAIR ACCESSES  
THE UPPER FLOOR OF A LOFT THROUGH  
A FULL DORMER.



WESTON, CT  
SIMILARLY, AN UNFINISHED STAIR LEADS  
TO A DECK AND OVER THE GARAGE  
APARTMENT.



CAMBRIDGE, MA  
A PARTIALLY-EXPOSED STAIR IS EN-  
CLOSED WITH CLAPBOARD TO BLEND  
WITH THE HOUSE. NOTE THE OPENING  
AT THE TOP OF THE LANDING WHICH  
PROVIDES LIGHT AT THE ENTRY; ALSO  
THE STORAGE AREA UNDER THE STAIR.

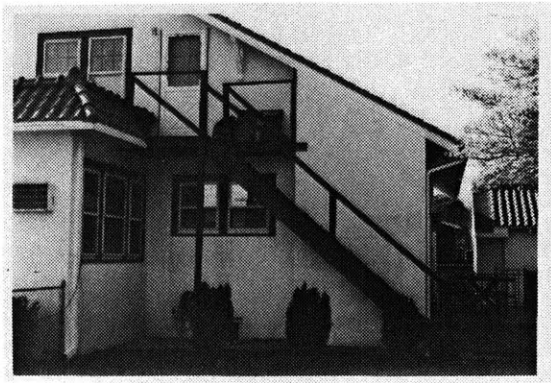


CAMBRIDGE, MA  
HERE THE AREA UNDER THE STAIR IS  
PARTIALLY SCREENED AND USED FOR  
GARAGE.

and they add life to the street; however he selects examples primarily from vernacular settings where they blend easily with the articulated facades of these incrementally built residential environments [pp. 740-744]. In the context of the American suburb with its detached box-like house, an exterior stair becomes a much more prominent visual element, and its design becomes critical. Exterior stairs which are attached to the form of the house often look like an afterthought; these splindly, open structures frequently remain unpainted and contrast markedly with the solid massing of the house.

A stair which has a solid form may be a more appropriate addition to the continuous surface of a suburban house than an open stair. The treads and the handrail may be built as solid surfaces and the area under the stair may be enclosed as a storage shed. If it is built as a solid form, the stair may appear as a corner of a room rather than as a point of access if the treads are oriented away from the street.

In most cases, it will be preferable to build stairs parallel to the wall of the house.



UNDERHURST, NY  
OPEN STAIR IS LOCATED  
SO THAT USE OF DOWN-  
STAIRS WINDOWS IS  
RETAINED. THIS STAIR  
IS PAINTED RED TO MATCH  
THE TRIM OF THE HOUSE.  
(SEE P. 50 FOR VIEW OF  
STAIR FROM STREET).



STAIR BLOCKS WINDOW



STAIR MOVED FORWARD  
TO REGAIN USE OF  
WINDOW; PRIVACY RETAINED  
FOR ALL THREE WINDOWS

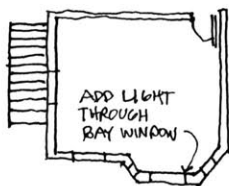


SCISSOR STAIR DOES  
NOT BLOCK WINDOWS  
BUT MAY BE MORE  
VISIBLE FROM THE STREET.

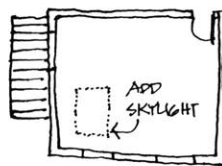
Although this blocks more wall surface and perhaps more windows, a parallel stair will require fewer vertical supports if one edge is against the house, and it may more easily be enclosed at a later date. If the stairs start from the street side, they may be screened by a garden gate, trellis or other landscaping which protects the actual door from the street yet still signals a point of entry. From the public way, a passerby would not be able to distinguish this gate from a landscaped path to the backyard.

The location of exterior stairs raises one other consideration: they may block or invade the privacy of downstairs windows. The exact position of the stairs will be influenced by the location of first floor windows. It will generally be preferable to locate the stairs toward the street edge of the building so that the privacy of the remaining windows is maintained. If the stairs must be pushed deeper into the site, privacy can be maintained by locating the path away from the edge of the house, building a privacy screen to protect the windows, or simply adding an interior screen to the lower part of the window.

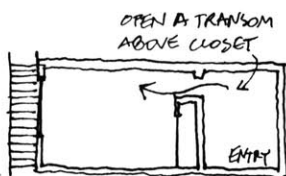
WAYS TO ADD LIGHT TO DOWNSTAIRS ROOM  
WITH ONE EDGE BLOCKED BY STAIR.



PLAN OF BEDROOM



PLAN OF BEDROOM

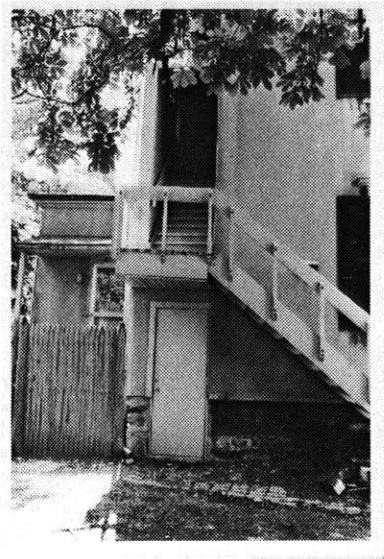


SECTION OF BEDROOM  
AND ENTRY



(From Alexander, p. 749)

ROOF OVERHANG  
PROTECTS STAIRS FROM  
ELEMENTS.



CAMBRIDGE, MA  
A PARTIALLY-ENCLOSED STAIR  
(SEE P. 41 FOR ANOTHER VIEW)

A related issue is how to compensate for the loss of light to the downstairs rooms. Because the houses are only two rooms deep, existing windows in the other wall may suffice, but additional light could be provided by:

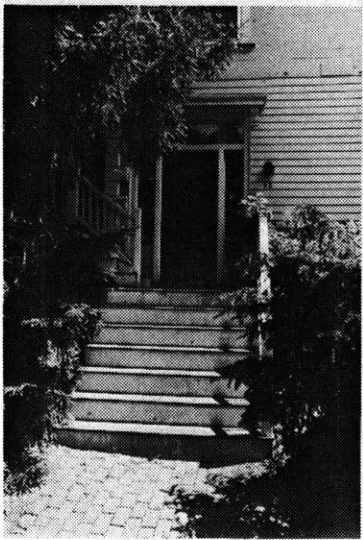
- adding a window on the other edge
- adding light from above through a skylight
- borrowing light, or at least a sense of openness and the possibility for through-ventilation, from a well-lit entryway

Often the front bedroom is buffered from the entry by closets. The excess space above the usable dimension of the closet can be opened to provide ventilation, and perhaps light as well.

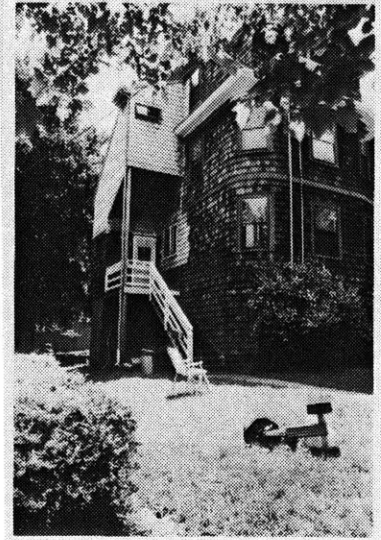
In areas where it snows frequently, it may be desirable to protect the stair by extending the roof overhang, building a partial wall, or sealing it from the elements altogether. If the stair remains exposed to the weather, consideration should be given to snow removal; this may be solved by open treads or by leaving a space between the treads and the handrail so that snow can be brushed off.

The critical issue is that the stairs be

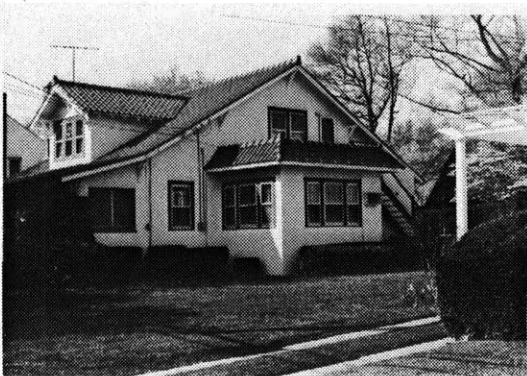


**CAMBRIDGE, MA**

A STAIR WHICH IS INTEGRATED WITH THE FORM AND MATERIALS OF THE HOUSE. STAIR TO UPPER FLOOR UNIT ORIGINATES FROM PORCH.

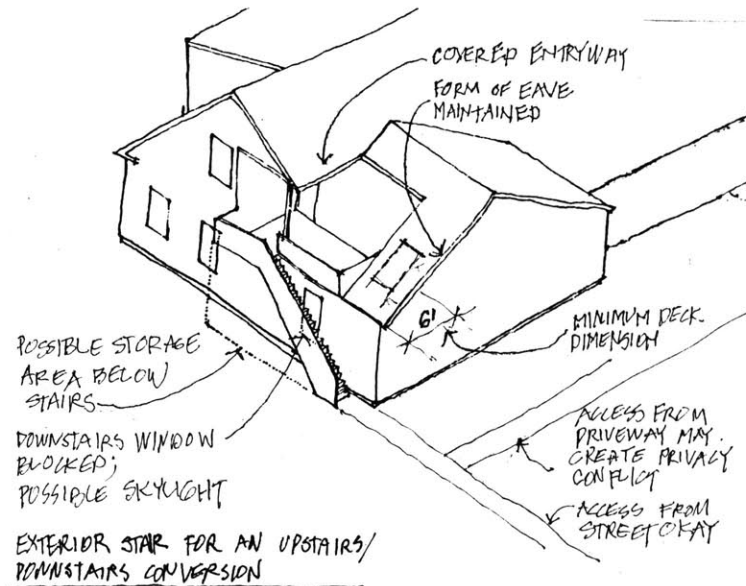
**NEWTON, MA**

STAIR WHICH IS NOT INTEGRATED WITH THE FORM OR MATERIALS OF THE HOUSE. NOTE AWKWARD ROOF CONNECTIONS AND GAPING HOLE BENEATH STAIRS.



**LINDENHURST, NY**  
STAIR LOCATED BEHIND PROJECTING VOLUME OF HOUSE IS VISIBLE BUT NOT OBTRUSIVE FROM THE STREET. (SEE P. 48 FOR DETAIL OF STAIR).

integrated with the form of the house. The possibilities are numerous: it might mean originating the stair from a porch level or locating it behind a projecting volume of the house. An open stair might be painted to match the trim of the house, while a solid stair might be wrapped in clapboard siding painted to match the existing house. A concern that is relevant to the construction of exterior stairs is the common practice of carrying a renovation project almost to completion and then leaving it for several months; the absence of paint on exposed stairs is particularly noticeable.



## PRIVATE OUTDOOR SPACE

While construction of an exterior stair may be required for code reasons, allocation of private outdoor space for an accessory apartment may be looked on as a nicety rather than a necessity. As a result, examples are hard to find. Nevertheless, provision of a place for outdoor activities for the apartment occupant may greatly increase the livability of the second unit and can often be accomplished without sacrificing the privacy of the larger house. A small yard or deck may be located on the front, side, or rear of the house, or for an upper floor unit, on the roof.

Two factors will influence the location of outdoor space for an accessory unit: site issues such as orientation or view and relationship to interior floor plan. Landscaping, fences and grade changes can be used to define private outdoor areas. Often a small yard is already defined by a wing of the house or by special landscaping so that a portion of the yard may be set aside without much additional investment. This is the case in the split level house where the interior level change is often reflected by an exterior change in grade in



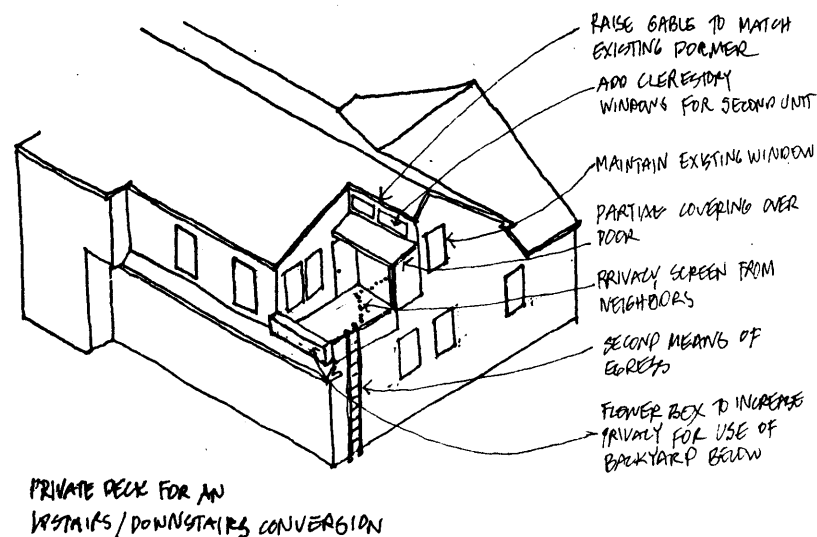
WESTON, CT  
THE SMALL ADDITION TO THE RIGHT DEFINES A FRONT YARD FOR THE TENANT (LEFT) AND A REAR YARD FOR THE HOMEOWNER (SEE PLAN P. 53, PHOTO, P. 45).

the backyard which can easily be supplemented with a fence to create privacy.

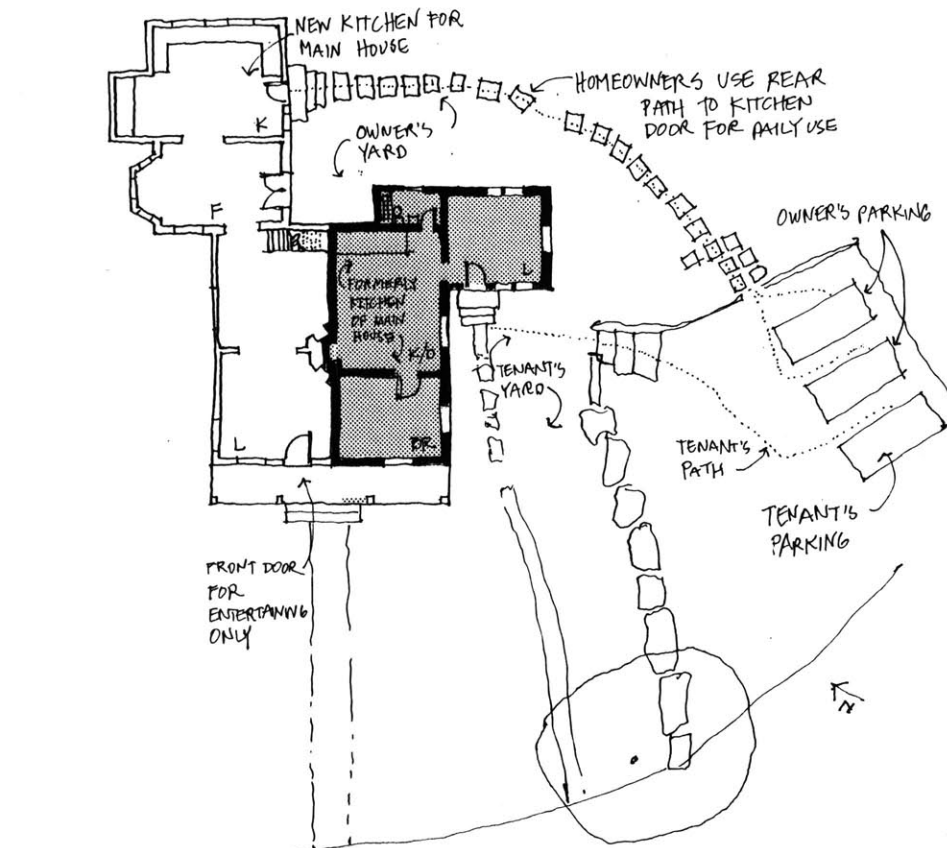
For an upstairs unit, the minimum investment approach is to designate part of the yard for the use of the apartment occupant even though a direct relationship with the interior of the unit is not possible. If the unit is accessed by an exterior stair, a private yard could surround the stair. As far as an upstairs deck is concerned, the minimum investment approach involves a widening of the stair landing to a usable dimension, probably at least 6'; this approach was commonly observed in Weston and Lindenhurst. However, if the upper level unit is accessed by an internal stair, the porch cannot be associated with the point of access; this may be preferable because the porch becomes more private if it is not used as a daily thoroughfare.

A deck will be less visually prominent if it is built into the roof rather than attached onto the form of the house. The walls of the house can then surround the deck on two sides and give it a sheltered quality. Part of the terrace may be further protected by a roof overhang, perhaps located over the door

to the interior. At least one wall should be left free for furniture, so that it may be oriented toward the view. It may be desirable to retain the form of the eave to maintain the integrity of the roof line and provide a privacy screen from neighbors. Alternatively, a partial wall may be erected. Finally, a buffer, such as a flower box, at the edge of the deck which overlooks the backyard will ensure the visual privacy of the downstairs unit.



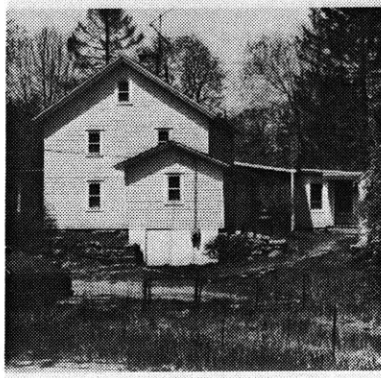




**WASTON, CT. CONVERSION OF 1822 HOUSE**

BOTH UNITS HAVE DIRECT PATHS FROM THE PARKING AREA TO THEIR DOORS WHICH DO NOT INTRUDE ON THE PRIVATE OUTDOOR SPACE OF THE OTHER UNIT. (SEE OTHER VIEWS, PP. 49, 51).

VIEW TOWARD HOUSE FROM BEHIND PARKING AREA SHOWING TWO PATHS.





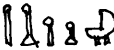
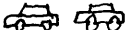
















**PARKING**

The presence of additional cars is the most visible manifestation of accessory apartments and perhaps the most difficult change for many neighborhoods to absorb. Many articles on accessory apartments assume that a major parking problem will inevitably result<sup>1</sup> and local controversies often become heated over this issue. Before exploring alternative parking solutions for additional cars, it is useful to look in more detail at the implications of a second dwelling unit in terms of cars/household. The net change in number of cars is highly dependent on the demographic characteristics of a particular neighborhood and the proximity to transit and convenience shopping. For example, if there is a university nearby, students influence the nature of the housing market.

One can speculate about the cars which would result from several alternative scenarios for the inhabitation of the Cape Cod house analyzed above, and compare these results to the number of cars that would be present if

1. See Tri-State Regional Planning Commission, "Legalizing Single Family Conversions," Questionnaire Survey, (September 1980), Question 10.

HOUSEHOLD COMPOSITION		CARS
COUPLE BUYS HOUSE AND RENTS TOP FLOOR TO SINGLE FRIEND		
FIRST CHILD BORN; FRIEND MOVES OUT.		
TWO MORE CHILDREN BORN; COUPLE BUYS SECOND CAR.		
OLDEST CHILD STARTS DRIVING		
SECOND AND THIRD CHILDREN START DRIVING AND SHARE A CAR		
TWO OLDEST CHILDREN LEAVE HOME; ELDER PARENT MOVES IN		
GRANDMOTHER DIES; YOUNGEST LEAVES HOME; CHILD RETURNS HOME AS SINGLE PARENT		
EMPTY NESTERS RENT TO SINGLE TENANT		
ELDERLY HOMEOWNER RENTS TO YOUNG COUPLE		
GROUP HOUSE		

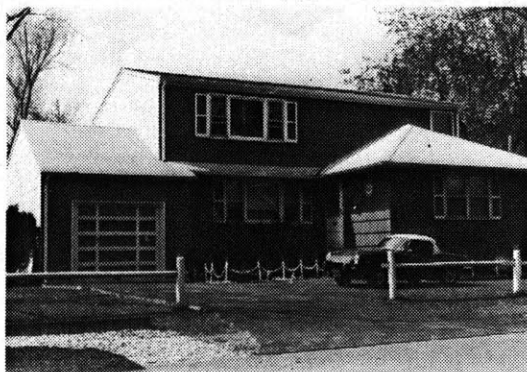
a group of unrelated individuals shared the same house. Without alterations, the Cape has four discrete rooms for sleeping. A hypothetical evolution of uses for the house during the life cycle of one family is shown at the left.

From this brief examination, one can conclude that the number of cars resulting from an accessory apartment may not represent a net increase over previous stages in the life of the house; surplus space is a prerequisite for conversion to occur, and the empty rooms may have previously had occupants with cars. In short, it is not a given that the number of cars will increase. A group of four or five unrelated individuals sharing the house might result in more cars than the introduction of an accessory unit.

Alternative parking solutions are dependent on the lot size, block dimensions, street width, setbacks and house types of a particular suburban context. Nevertheless, a variety of conceptually different approaches to dealing with additional cars may be identified without reference to a particular site. The possibilities described below require varying degrees

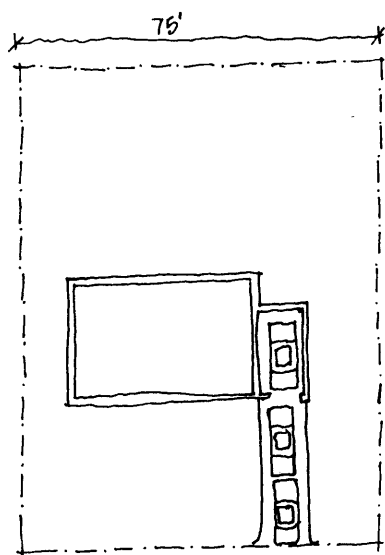
of public and private investment and regulatory change. Some may be achieved by the individual homeowner, while others require cooperation between neighbors and/or significant public participation:

- park in existing driveway
- enlarge driveway
- introduce additional driveway
- park on street
- reorganize unbuilt areas--front yards, the street, and/or the center of the block to accommodate additional cars
- provide alternative modes of transportation

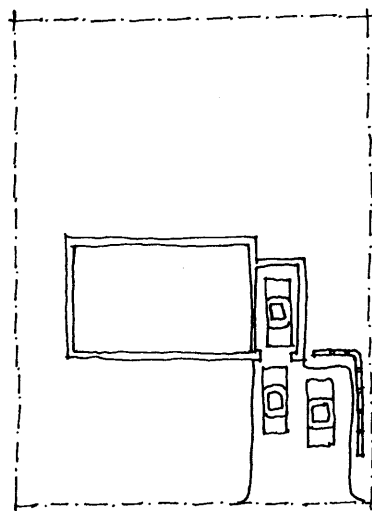


VINDENHURST, NY  
 LOOP DRIVEWAY  
 CREATED TO  
 ACCOMMODATE  
 ADDITIONAL CARS.

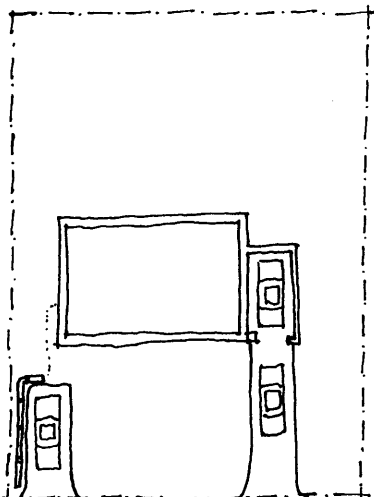
Those solutions which can be implemented on a lot by lot basis are explored here, and an increase from two to three cars is assumed. This is the most likely number of cars which will accompany a converted household and includes: an elderly homeowner who rents to a couple, emptynesters or a young couple who rent to a single person, a single parent with a teenager of driving age who rents to a single individual. Small lots of 75' x 100', which in most cases were originally designed for one car, are selected for study because they provide the greatest constraints to additional cars.



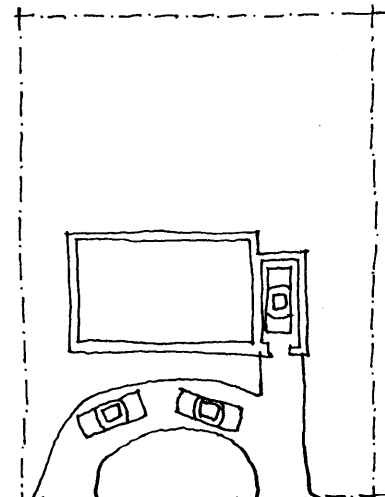
PARK IN TANDEM IN EXISTING DRIVEWAY



WIDEN DRIVEWAY; ADD FENCE TO SCREEN FROM NEIGHBORS.



ADD STUB DRIVEWAY AND FENCE TO SCREEN FROM NEIGHBORS. PARTICULARLY APPROPRIATE WHEN TENANT ENTERS AT OPPOSITE END OF SITE FROM DRIVEWAY.



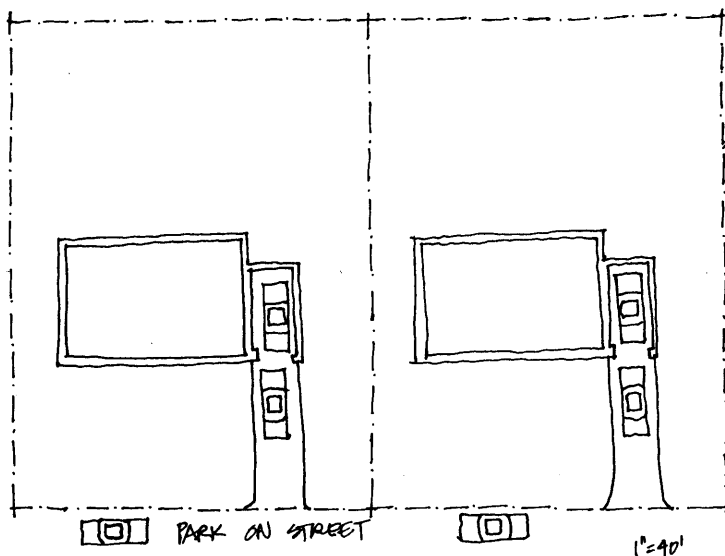
ADD LOOP DRIVEWAY

1" = 40'

Parking more than two cars on lots of 1/4-acre or less requires parking in tandem, a very wide curbcut, or an additional curbcut to form a loop or a stub driveway. While members of the same household may be willing to put up with the inconvenience of parking in tandem, they may be less willing if this involves coordinating with a tenant who may keep different hours. Even if the driveway is large enough to accommodate all three cars, this inconvenience may result in one car habitually parking on the street. Because of a desire to keep backyards free for outdoor activities, additional cars will most likely be accommodated in the zone between house fronts, whether on the lot or on the street, and this may substantially alter the character of a street.

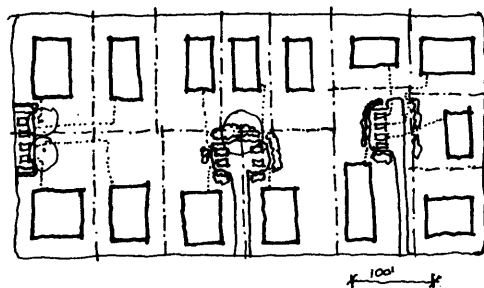
In neighborhoods with larger lots, particularly those with 1/2-acre and more, the driveway can generally accommodate an extra car without modification; larger lots imply more space between houses and probably greater setbacks, which mean that additional cars will have less impact on the street as a whole.

The other approach which does not require

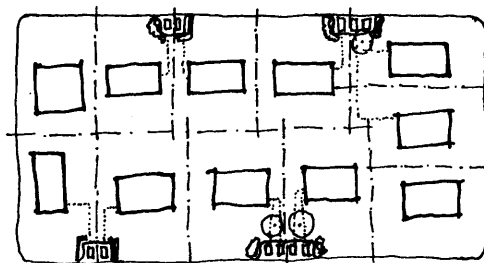


substantial alteration of the existing fabric is on-street parking. Considerations which will influence this option include street width, number of lots/street, traffic flow, and the logistics of street cleaning and snow removal.

An alternative to accommodating additional cars on a lot by lot basis or on the street immediately in front of each house is to group cars in small lots within close proximity of new dwelling units. This may occur through a time-sharing arrangement where parking lots occupied during the daytime by other uses serve as residential lots during the night, or new lots may be created. If the maximum lot size is limited to four cars, or perhaps even three, this would mean that no more cars would be aggregated in any one place than might typically be found in a driveway; the aggregate number of cars should not exceed existing neighborhood patterns by more than one, or at most, two cars.



IN A STREET-ORIENTED NEIGHBORHOOD WITH SMALL FRONT YARDS, IT MAY BE PREFERABLE TO LOCATE ADDITIONAL CARS IN SMALL LOTS IN THE CENTER OF THE BLOCK.



IN A NEIGHBORHOOD WITH DEEP FRONT LAWNS WHERE HOUSES OPEN TO THE BACK YARDS, IT MAY BE POSSIBLE TO ANGLE PARK CARS DIRECTLY OFF THE STREET.

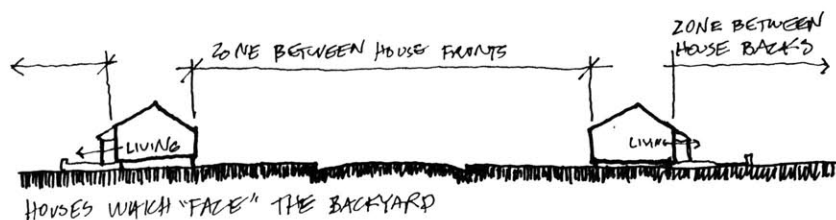
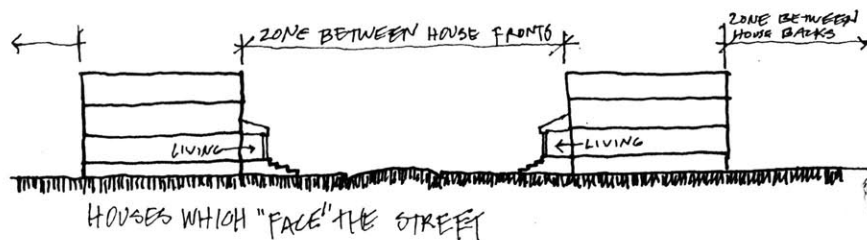
These small lots could provide parking for two adjacent lots or more and might take a variety of forms using public and/or private land. If located in the center of the block, a lot could be accessed by a narrow 10' right of way; if located on the street, landscaping could soften their impact.



18. Elm Street, Lumberton, North Carolina, ca. 1910

(MOORE, p. 200)

## STREET-ORIENTED HOUSES



## CONTEXTUAL CONCERNS

The preceding discussion of conversion design issues has treated these subjects independently of a particular suburban context. While the issues of entry and separate stairs can be treated generically regardless of house type and density, the introduction of roofdecks, porches and private gardens, alternative parking solutions are dependent on their physical context.

Before turning to the question of how to regulate these physical changes, it is necessary to briefly consider the enormous diversity of single family residential settings. Suburbs are often treated summarily, yet their physical form and the suburban streetscape vary greatly. Aside from a variety of densities which range from 5000 square foot lots to 2-acre lots and more, street widths, setbacks, house types and the presence of trees and other landscaping elements, both natural and built, contribute to the suburban streetscape. The suburban fabric is further differentiated by a variety of block forms and road configurations.

For the purposes of this study, a useful distinction can be drawn between houses which

enfront the street and those which open to the backyard. Nineteenth-century house types of the streetcar suburbs were oriented with their narrow dimension to the street on deep lots of 3000 to 5000 square feet. Living spaces faced the public way and often opened onto a front porch; usually kitchens were located at the rear, deliberately isolated from the living spaces, and bedrooms were on an upper floor.

Stern (1978) credits F. L. Wright with the

gradual transformation of the suburban streetscape. The narrow but relatively deep lot characteristic of nineteenth century suburbs was not suitable for Wright's new house type. This deemphasized the tradition of front, back, and sides in favor of something new, based on the simultaneous inward and outward focus of the interior spaces and the composition of volumes according to the principles of centrality and rotation. To accomodate [sic] Wright's Prairie House, their lots became square in plan, and the centralized massing of his most resolved works led also to the abandonment of the traditional gable-fronted building in favor of a very low hip roof . . . with [its] ridges running parallel to the street. [p. 96]

This integration of indoors and outdoors resulted in a new orientation of the living spaces away from the street and toward the private backyard.

In describing the California ranch house, Walker states this evolution succinctly: "The street-oriented front porch of Victorian times was replaced by a private rear terrace" [p. 234]. Schumacher explains the social forces which induced this physical transformation:

Changes in American lifestyles that transformed public activities into private activities have reduced street use in existing neighborhoods and all but obliterated the street in many new developments. Some of these important daily activities that one had a less private reference are shopping, entertainment, incidental conversation, trips to school, and the traditional promenade. [p. 133]

Moore, Allen and Lyndon (1974) have taken a more critical view of the same phenomenon:

[In] the unsullied residential areas which remain here and there from the early part of this century, . . . houses were placed rather near the street and were connected to it and to the sidewalks by walkways from their front doors, which were actually used. Often these houses had front porches from which the inhabitants could survey the passing scene.

Now most houses in towns are shoved back from the street, the sidewalks have been abandoned, and the porches removed. The front door has become an unconvincing symbol, useless because of the more immediate access to the back which the auto-

mobile allows. The result of all this readjustment is that all vestiges of human habitation have vanished from the facades of houses, and instead of claiming their front lawns, they blankly ignore them. The lawns become wasteful foregrounds for stage-set houses along streets void of everything but passing cars. [pp. 199-201]

This transformation of the focus of suburban outdoor life from collective and street-oriented to private and backyard-oriented and the accompanying critique have an important implication for accessory apartments. The great variety of suburban contexts may demand different treatments of accessory apartments. These additional units may be introduced in ways that reinforce existing patterns, or, if one accepts the architectural critique of the suburb as summarized by Moore, Allen, and Lyndon, one might use accessory apartments to change rather than to reinforce existing suburban residential patterns. Different ways of approaching the allocation of private outdoor space and parking which rely on contextual concerns are discussed below.

Responding to these contextual issues, private outdoor space for new housing units within existing neighborhoods can take two

forms: it can reinforce patterns of use in an area by locating new outdoor spaces according to what already predominates in that setting, or it may attempt to change these patterns by concentrating activity where it is lacking--either overlooking the street or in the center of the block. The location of a private garden or porch will depend on the physical layout and formal order of a given neighborhood and whether the intent is to reinforce or transform existing patterns.

If the intention is to strengthen patterns which already exist, older suburban areas with front porches on the street may be able to accommodate the addition or subdivision of private outdoor spaces in the zone between the front of the house and the street without a substantial alteration of the streetscape. However, the introduction of private porches, decks or terraces into the predictably regular formal order of the postwar suburban streetscape with its rows of gable and pitched roofs, trim lawns and wide driveways would involve a significant departure from the existing context. Generally the only activities that occur in this zone are associated with the garage and driveway.



The formal street facades contrast markedly with the informal massing of additions and dormers in the rear; likewise the empty front lawns differ from the backyards where fences and landscaping are used to define terraces for outdoor living. Location of additional outdoor spaces in the backyard may be more appropriate in these newer neighborhoods.

Several critics have analyzed the physical and social implications of front and back yards. Caliandro's (1978) description of a single family neighborhood in Queens draws this distinction between front and back:

The public private boundary is conventionally recognized at the property line, but the effect of public visual access reaches to the house fronts. A consequence is that the front yards of the houses are devoted to public show . . . These yards . . . are generally unused--at best a buffer between the street and the house.

Family and neighboring activities are often enclosed within the house or private backyard, leaving little scope for the street space to absorb these in the process of socialization.

. . . Although few spontaneous activities contribute directly toward the place orientation of the street, those that center on the use and care of automobiles take precedence. [p. 154]

Clare C. Cooper (1967) addresses the difference between front and backyard in her study of the Easter Hill public housing project and concludes:

Whereas the back yard at Easter Hill Village appeared to be a space into which family activities overflowed from inside the house, the space at the front of the house had more social connotations, forming a barrier between the privacy of the house and the completely public nature of the surrounding neighborhoods as well as a link between the small social group of the family and the larger social group of the community. [p. 274]

In the case of Easter Hill, Cooper found that the small dimension of the front yards and the presence of a partially enclosed porch large enough for lounging achieved several goals simultaneously: privacy, status, social contact.

If one takes the attitude of transforming rather than reinforcing existing residential patterns, the definition of new private spaces for apartments within single family houses could be seen as a way to foster the kind of informal neighboring which Cooper observed at Easter Hill and recreate a sense of the street as place which characterizes older suburbs. Both Caliandro and Alexander have suggested ways of rethinking the relationship of house and street

to this end. Caliandro has proposed:

a reconfiguration of the public-use boundary to change the nature of the public/private interface [which] would include . . . communal or public use of back yards-- a green public zone; and communal use of front yards to create a public green space as an extension of the street.

Alexander's pattern, "Private Terrace on the Street," addresses this issue at the scale of the individual house and suggests the design of an outdoor space which is visually connected to the street yet remains protected from public view. He cites the precedent of Wright's raised terraces as a way of providing privacy to living spaces facing the street and nevertheless enabling a connection with the street [pp. 665-667]. Finally, Delores Hayden (1980) has outlined a more sweeping transformation of the suburban environment which involves defining "a zone of greater activity at the heart of the block" for communal use and claiming front and side yards for private use:

To replace empty front lawns without sidewalks, neighbors can create blocks where single units are converted to multiple units; interior land is pooled to create a parklike setting at the center of the block; front and side

lawns are fenced to make private outdoor spaces; pedestrian paths and sidewalks are created to link all units with the central open space; and some private porches, garages, tool sheds, utility rooms, and family rooms are converted to community facilities such as children's play areas, dial-a-ride garages, and laundries. [p. S183]

As in the case of allocating private outdoor space, location of additional cars may reinforce or transform existing patterns of activity. In neighborhoods where backyards are the focus of outdoor activity, it may be preferable to introduce new cars into the zone between house fronts rather than between house backs. Reorganization of the street may make more sense than bringing cars into the center of the block. If street width and front yard dimension and the distance between curbcuts permits, angle parking for 2-3 cars at a time could be created from a combination of public and private property. An April 1970 House & Home article, entitled "Are We Building Streets in Our Subdivisions Twice as Wide as They Need to Be?" proposed that a typical 40' wide street could be narrowed to 18'; two 8' parking lanes and two 12' driving lanes are reduced to either

two 9' driving lanes or a 10' driving lane and an 8' parking lane. Parking bays are introduced where the spacing between curbcuts is sufficiently wide [pp. 94-95]. Alternatively, on deep blocks, a dimension of 300' or more may enable vehicular access through an alley without disrupting the sanctity of individual backyards.

In a street-oriented neighborhood, where the sidewalks are actively used, cars on the street may not be as objectionable as extra cars in the zone between street and house. Crosley (1982) has observed that cars in the street may even help define this zone [p. 31].

In her HOMES revitalization of a suburban block with thirteen houses, Hayden proposes paratransit as a means to reduce the number of cars from 26 to 20 despite an increase in the number of dwelling units from 13 to 40:

Three former private garages out of thirteen might be given over to collective uses--one as a central office for the whole block, one as a grocery depot, and one as a dial-a-ride garage. Is it possible to have only twenty cars (in ten garages) and two vans for twenty-six units in a rehabilitated block? Assuming that some residents switch from outside employment to working within the block,

and that for all residents, neighborhood shopping trips are cut in half by the presence of day care, groceries, laundry, and cooked food on the block, as well as aided by the presence of some new collective transportation, this might be done. [p. S186]

Hayden's proposal is a reminder that reinterpretation of the center of the block need not be limited to individual or adjacent lots and certainly need not be devoted to cars. Segregation of automobiles and green spaces, as pioneered by Wright and Stein in Radburn, NJ, if physically possible, may be preferable.

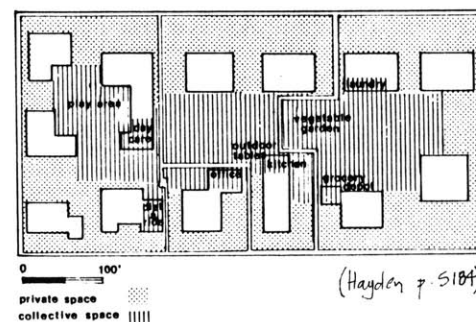


FIG. 5.—A, Suburban neighborhood, block plan. B, Proposed HOMES revitalization, same suburban block with new common space and facilities.

## Regulatory Implications

Many communities have adopted regulations to address the exterior alterations associated with accessory apartments, but this research has not uncovered any attempts to address this issue in a contextual way. Regulatory approaches range from specific guidelines for entry location to discretionary statements which refer to "single family character" without defining it. Different ways that communities have dealt with the question of entry, separate stairs, and exterior alterations are summarized below.

In addition to the question of exterior alterations, other regulatory implications of accessory apartments which are concerned with physical issues are discussed; these include unit size, lot size, and provision for parking. An alternative regulatory strategy, which is derived from the study of the physical form of a given neighborhood, is suggested.

### ENTRY

Numerous communities have focused on the number of entries visible from the street as an indication of single family character and have addressed this issue by regulating the number and/or position of additional entries. The language of the Babylon, NY resolution is highly specific:

. . . The dwelling [shall] have only one front entrance, all other entrances will be on the side or in the rear of the dwelling. An entrance leading to a foyer with entrances leading from the foyer to the two dwelling units will be acceptable. [pp. 5-6]

as is the Borough of Princeton, NJ ordinance which accounts for the fact that many houses have two entries facing the street prior to conversion and permits two entries visible from the public way as long as they face different streets:

There shall be no external entrance that faces a street and that is separate from any other external entrance to any building on the same lot facing the same street, but this restriction shall not apply to two or more entrances in existence on January 1, 1979. [p. 5]

The Portland, OR ordinance achieves the same effect though it does not account for pre-existing entries: "only one entrance to the house shall be visible from the front yard" (as cited in Hare, p. 16). A further refinement of this approach is to specify that no two entrances shall be visible at the same time from any point on the public way.

An example of an ordinance with more discretionary language is that of New Castle, NY:

If an accessory apartment is located in the principle dwelling building, the entry to such unit and its design shall be such that, to the degree reasonably feasible, the appearance of the building will remain as a one-family residence.  
[as cited in Hare, p. 16]

Finally, some communities have subsumed the regulation of additional entries into the larger question of exterior alterations. The Concord, MA bylaw reads:

No more than minimum exterior alterations shall be made to the single family dwelling.  
[4.2.2.2f, p. 5]

The basic question in considering additional entries is not whether they are visible at the same time, but how they relate to one another.

If the goal is to avoid the appearance of a two family house, one must examine the visual clues of two family occupancy regarding entry. There are three generic approaches to entering two units within a single structure:

- a single front door into a common foyer
- two identical or similar doors which may be located on the same or different facades
- two doors which are either dissimilar in form or provide entry into different building volumes.

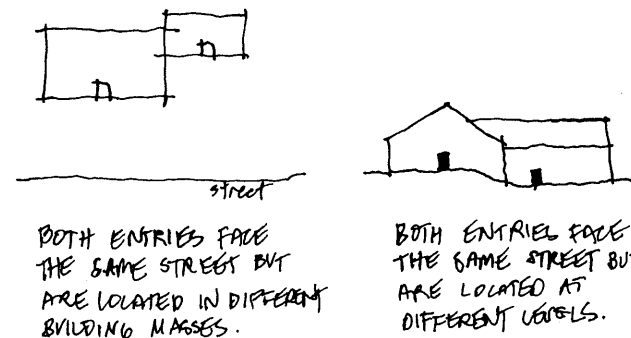
Clearly the first approach necessitates no exterior alterations and would not reveal occupancy by two families. The second approach, identical entries, probably does indicate the presence of two dwelling units, particularly if the two entries are located on the same facade, while the third, in many cases, does not; "back doors" are standard in single family houses, but they are not always located on the rear or even the side of the house.

Thus, the only way to ensure the appearance of one family occupancy is to specify entry through a shared foyer. However, as discussed above, requiring a single entrance involves a loss of privacy, and depending on the layout

of the foyer and the circulation to first floor rooms and upper and lower levels, may result in greater investment or a less desirable unit layout. If only appearance is at stake, restricting second entrances to the sides and backs of houses so that they are not visible from the street provides a way out of this dilemma, but this may be an unnecessarily restrictive approach.

Most ordinances to date regulate "single family character" by prescribing entry location relative to the public way; they do not distinguish between the form of an entry and its location. An alternative approach would be to specify the relationship between entries, rather than their respective location. If one accepts the premise of regulating against the image of a two family house, specifying that entries be dissimilar across at least one of the following variables might suffice:

- different building masses
- different levels



#### SEPARATE STAIRS

Much of this discussion about entries is relevant to exterior stairs as well, but there are several additional points that communities concerned about the visual prominence of exterior stairs could begin to regulate by establishing guidelines for their design. These could take the form of performance standards such as:

- The form and materials of the exterior stair should be consistent with those of the main house
- Isolated structural supports should be minimized
- Treads may not be visible from the street

## EXTERIOR ALTERATIONS

Along with additional cars, exterior alterations are the most frequently discussed visual change as a result of accessory apartments. We have seen that this change relates primarily to new entries and stairs. The more discretionary regulations, which require compatibility with "single family character," suggest another approach to guiding change than relying on performance criteria. The great variety of suburban contexts, and consequently, of single family character, makes this requirement vague and leaves enormous discretion to the Board of Appeals or other licensing authority in a particular community. In some neighborhoods, multiple entries visible from the street may be the norm, while in others, the introduction of a second point of access might represent a significant departure from existing patterns.

The job of the regulator could be simplified by clarifying exactly what is meant by "single family character." This might be achieved by defining character according to neighborhood context, rather than the common assumption of one entry described above. A proposed amendment to the Winchester, MA zoning

bylaw begins to address the issue of exterior alterations in a contextual way, though it retains the notion of single family character:

The Small Apartment shall not cause or require exterior modification to the building in which the Small Apartment is located which is incompatible with adjacent properties and properties generally in the neighborhood, or detrimental to the single family appearance of the building. [Draft Amendment, July 18, 1981, Section IIIb]

Further studies of suburban environments are needed in order to define the elusive notion of "single family character"; in the meantime, communities can take cues from what they find in their own front and back yards in order to guide rather than hide physical change as neighborhoods that were built in earlier days adapt themselves to the 1980s.

## UNIT SIZE

Hare has pointed out that "a major concern of many conversion ordinances is that the accessory apartment be 'clearly subordinate to' the main unit" [p. 5]. Communities achieve this goal by limiting apartment square footage to the 500 to 600 square foot range, restricting

the number of rooms, or specifying a percentage of the house, generally 25% to 35%, which may be devoted to the accessory use.

Due to the wide variety of house types and housing needs, specification of square footages and percentages may unnecessarily inhibit conversion. For example, a small two-level house, such as a colonial or a raised ranch, may have a roughly equal number of square feet on each floor, such that a percentage limitation would make conversion impractical. Princeton Township, New Jersey's flat ordinance avoids this problem by linking the percentage to house size:

If the area of the house is:	The net floor area of the flat shall not exceed:
Under 2,000 sq. ft....	50%
2,000 or more but less than 3,000 sq. ft.....	40%, or 1,000 sq. ft., whichever is greater
3,000 or more but less than 5,000 sq. ft.....	30%, or 1,200 sq. ft., whichever is greater
Over 5,000 sq. ft.....	20%, or 1,500 sq. ft., whichever is greater.

[Section 10B-274 c]

New Castle, New York's ordinance overcomes this

difficulty by giving more discretion to the permitting board:

The minimum floor area of an accessory apartment within a principle dwelling building shall be (300) square feet, but in no case shall it exceed twenty-five percent (25%) of the area of the dwelling building in which it is located, unless, in the opinion of the Planning Board, a greater or lesser amount of floor area is warranted by the specific circumstances of the particular building. [As cited in Hare, p. 16]

Given the conclusion that many conversions may take place with minimal exterior alterations, one might question whether this concern with making the new unit subordinate to the main unit is visually motivated. In most cases, it is difficult to judge the square footage allocation to the two units from the outside, which indicates that this restriction of apartment size may reflect other concerns. Another frequent way of couching the argument against units of equal size is that it is equivalent to changing a one family zone to two family. The minimal visual implications of such a change have already been discussed, and ways of hiding or guiding change have been identified. The social implication in terms of absentee owner-



ship and decreased maintenance are more relevant to the oft-professed concern with maintaining neighborhood quality. The provision for owner occupancy, which almost every ordinance includes, addresses this issue; specifying a percentage size or maximum size for the accessory unit does not.

What placing a cap on unit size does accomplish is limiting the number of occupants who will live in the accessory apartment and it achieves this goal without creating an enforcement problem of continually monitoring the number of occupants in the second unit. However, if the intention behind small apartment size is to control the net population change in the neighborhood, it is not effective because it does not prohibit a single homeowner from moving into the smaller unit and renting the remainder of the house to a small family or a group of individuals. In 1980, Lexington, MA proposed an amendment to permit accessory apartments which struggled to address this concern with number of occupants:

An accessory apartment shall replace the permitted accessory use of taking in boarders or letting or renting of rooms without cooking facilities . . . for both

the main dwelling unit and the accessory apartment. [Article 62, Section 9.9.2.i]

Controlling the number of individuals who occupy a single family house may be accomplished more effectively if this issue is tackled head on. Since many local zoning ordinances already specify the maximum number of unrelated individuals who may occupy a single family house, such an approach does not involve a conceptual change in zoning or in enforcement procedures. Portland, Oregon's ordinance uses this strategy:

The aggregate number of persons that may occupy the added rental unit and the remaining house is limited to the number allowed for the house without a rental unit. [As cited in Hare, p. 8]

#### LOT SIZE

In addition to unit size, many communities have restricted conversions according to lot size. Ordinances, such as the one in Newton, MA, allow a second unit if a lot is twice the minimum for its zone; this enormously restricts conversion eligibility. Princeton Borough, NJ reduced this requirement from 200% to 150% of the lot size in a given zone (17A-228a-2b).

Hare has observed that:

. . . it may not make sense to make standards for accessory apartments parallel standards for existing single-family zones. A spacious lot is not a prerequisite for either a young professional household or an older one. In both cases maintenance problems may make the large lot a burden rather than a luxury. [p. 7]

The earlier discussion of allocation of outdoor space for second units indicated that even on small lots, a sideyard or portion of the backyard may be enclosed without adversely affecting the outdoor space of the primary unit. Provision of additional parking on lots of less than 10,000 sq. ft. may pose a more serious constraint, but this will depend on the parking patterns and standards in a particular neighborhood, which are dealt with below.

#### PARKING

Although a wide range of parking alternatives were discussed above, for regulatory purposes, only the conservative assumptions that do not require a major reorganization of open space will be considered in detail; these include accommodation of additional cars on a lot by lot basis and on-street parking, which are the minimum investment approaches which will be

exploited before backyards, frontyards or public ways are considered. Provision of parking for accessory apartments raises several regulatory issues which are examined in turn:

- number of spaces required
- tradeoff between private and community interest (on- vs. off-street parking)
- screening cars (landscaping)
- tailoring requirements according to number of cars/household
- length of curbcut and size of paved driveway (degree of departure from existing patterns).

Though the number of required off-street parking spaces per converted house ranges from two to four, most ordinances call for three spaces--two for the main house and one for the additional unit. Parking of cars involves a tradeoff between one's own, one's neighbors', and the neighborhood's interest. The private interest may suggest parking on the street, while the public interest may dictate parking on individual lots or even in the center of the block. A resident may prefer to park his car at the edge of his property, but may not want to have to look at his neighbor's car immediately across the lot line.

Whether located in private drives or clustered in small lots of twos and threes, whether parked in the public domain or in the block interior, additional cars will change the character of a neighborhood. Their impact can be mitigated with landscaping, both natural and built. Kendig (1980) introduces the concept of a bufferyard, which is:

an area of plantings surrounding a land use which screens or blocks vision, noise pollutants, or other negative by-products associated with that use. . . . On any particular site, . . . neighbors . . . are protected--literally 'buffered'--from the consequences of [a] more intense use 'next door.'" [p. 45]

He identifies "four basic variables in bufferyard design: distance, plant material, plant density, and land forms," and develops a formula for bufferyard requirements based on the degree of difference in the hierarchy of land uses between adjacent parcels [pp. 48-50]. Applied to parking, a bufferyard might mean that a car could be parked at the side lot line if a fence or landscaping shield it from the neighbors' view. Similarly, cars might be stored close to the front lot line, if proper screening is provided.

Lindenhurst, NY employs a system whereby number of off-street parking spaces is directly tied to the number of cars in the converted house; as long as the second unit occupant does not own a car, no additional space need be provided. A discretionary approach may consider each case individually but it has the disadvantage of high administrative costs.

The visual changes which result from extra cars involve more than just the automobiles themselves. If off-street parking is required, this may mean more curb cuts and more paved area in front of each house which may have a greater impact on the streetscape than the alternative of parking on the street. Regulations might prohibit parking spaces located in front of the front wall of the house, or they might specify the percentage of open space on a lot that may be devoted to parking. Before selecting an approach to guiding the change that results from increased cars, the patterns of use both in the street zone and in the center of the block must be examined to determine where cars can be most easily and discreetly stored.

## BUILDING CODES

The building code issues which are relevant to accessory apartments are fire separation between units and proper egress. Requirements for conversion may not be as strict as they would be for new construction. State codes vary on this point as do local building inspectors; often the inspector has substantial discretion to make decisions on a case-by-case basis. Although other approaches are possible, the most practical fire separation involves the installation of two sheets of 5/8" gypsum board. The more difficult issue is the egress question which revolves around whether each unit is required to have two separate means of egress to grade.

A strict interpretation of the second means of egress requirement would necessitate the construction of an exterior stair for the one-and-one-half level house described on pp. This substantially increases the level of investment required for conversion of most 1 1/2 and 2 story houses, which may not be warranted given the limited change of use. A further concern is whether one of the exit routes can be through the other unit. Again strict interpretation

of the code would prohibit an occupant's traversing another dwelling unit, whose door might be either locked or unintentionally blocked.

One might argue, however, that there is a more informal relationship between owner and tenant in a converted single-family house than in a typical two-family house, so that providing one egress for the tenant through the main house would not be unreasonable. Perhaps the converted single-family house is a new category of housing which is neither one family nor two family and might be regulated as such.

## Conclusion

This study indicates that the physical changes that result from conversions are few and that skillful design can mask those changes that do occur, with the possible exception of an extra car; it is not even clear that the car that accompanies an accessory apartment is in fact an "extra" car. For houses such as most split levels and raised ranches which have grade or slightly-below-grade recreation rooms with a bath or lavatory nearby, the addition of an apartment may not necessitate any exterior change. While one-story ranch houses may not lend themselves as easily to conversion, if they are subdivided, the new doorway may be designed any number of ways to look like an extra door rather than a front door to a separate unit. Similarly, the stairs which may accompany the conversion of two-story houses, if discreetly located and carefully designed, may not necessarily be noticeable from the street.

Given the fact that the physical changes resulting from conversions are not very extensive, one might ask why controversy has developed around the conversion issue. Two possible answers come to mind. Residents may be reacting to conversions that are poorly executed and hence do detract from neighborhood quality, or they may not be reacting to physical changes at all, but rather to social changes.

Perin (1977) has described the American land use system as an institutionalization of certain status markers, two of which relate directly to accessory apartments: owners vs. renters and old-timers vs. newcomers. It may very well be that legislating against extra doors, stairs, and cars masks a more fundamental desire to keep renters and newcomers out. If this is the case, specifying physical design standards for conversion may not change perceptions in communities where opposition to the legalization of accessory apartment is strong. However, the widespread development of illegal apartments which do not conform to codes or zoning regulations may overwhelm social objections if neighbors begin to see poorly-executed entryways, stairs, or additions in their side-

yards. The proliferation of illegal apartments makes these design issues critical; if properly regulated, they may indeed be trivial compared to issues of social change.

The regulation of the physical changes that accompany accessory apartments creates a paradoxical discrepancy between what is permitted for an addition and what is allowed for a conversion. One can hypothesize a situation where an addition that falls within zoning setback requirements might exceed the percentage increase in floor area allowed for a conversion; likewise, an exterior door visible from the street might be prohibited if it serves as an entry to a separate unit but not if it acts only as an extra door to expanded living space for the original household. This inconsistency raises an interesting question about how physical change is regulated, which hinges on whether the intention is to hide or to guide neighborhood change.

This investigation has shown that change can be hidden, but it also challenges the prevailing assumption that change must be hidden and speculates about an alternative approach which relies on a study of the physical fabric

of the environment into which change is introduced. Although conversions for the foreseeable future will occur on a lot-by-lot basis as individual homeowners adapt their houses to suit their needs, planners, builders, bankers, realtors, policymakers and other observers who influence the process of single family housing may begin to think about these changes on a larger scale such as a block or a neighborhood. The small-scale incremental changes which result from accessory apartments offer a way to strengthen neighborhood identity; they can be used to either reinforce or alter existing patterns. Actively guiding change is an alternative to categorically hiding it.

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