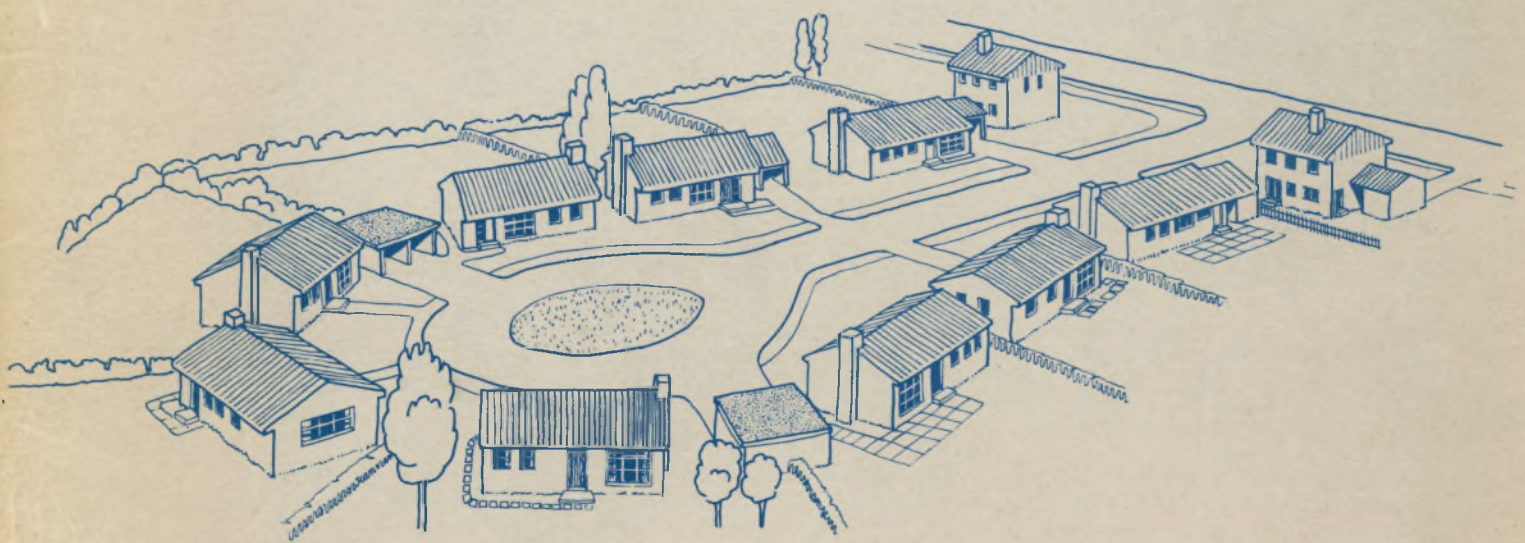
PRINCIPLES OF

SMALL HOUSE GROUPING

1954



CENTRAL MORTGAGE AND HOUSING CORPORATION

OTTAWA — CANADA

contents

foreword — House Design to City Design 2

introduction — House Grouping 4

1 the design of the dwelling 6

- Planning the House 8
- The House and the Lot 10
- The Shape of the House 12
- Exterior Treatment 14
- Economy Through Standardization 16

2 design examples 20

3 the design of housing groups 32

- Circulation 32
- Residential Access Streets 34
- Block and Lot Planning 36
- Landscape Design 38
- Relationship of Dwellings 42

4 the street picture 44

- Grouping on the Continuous Street 48
- Streets Designed as Major Grouping Elements 50
- Street Intersections 53
- Miscellaneous Street Patterns 54
- Single and Semi-detached House Groupings 54

bibliography 55

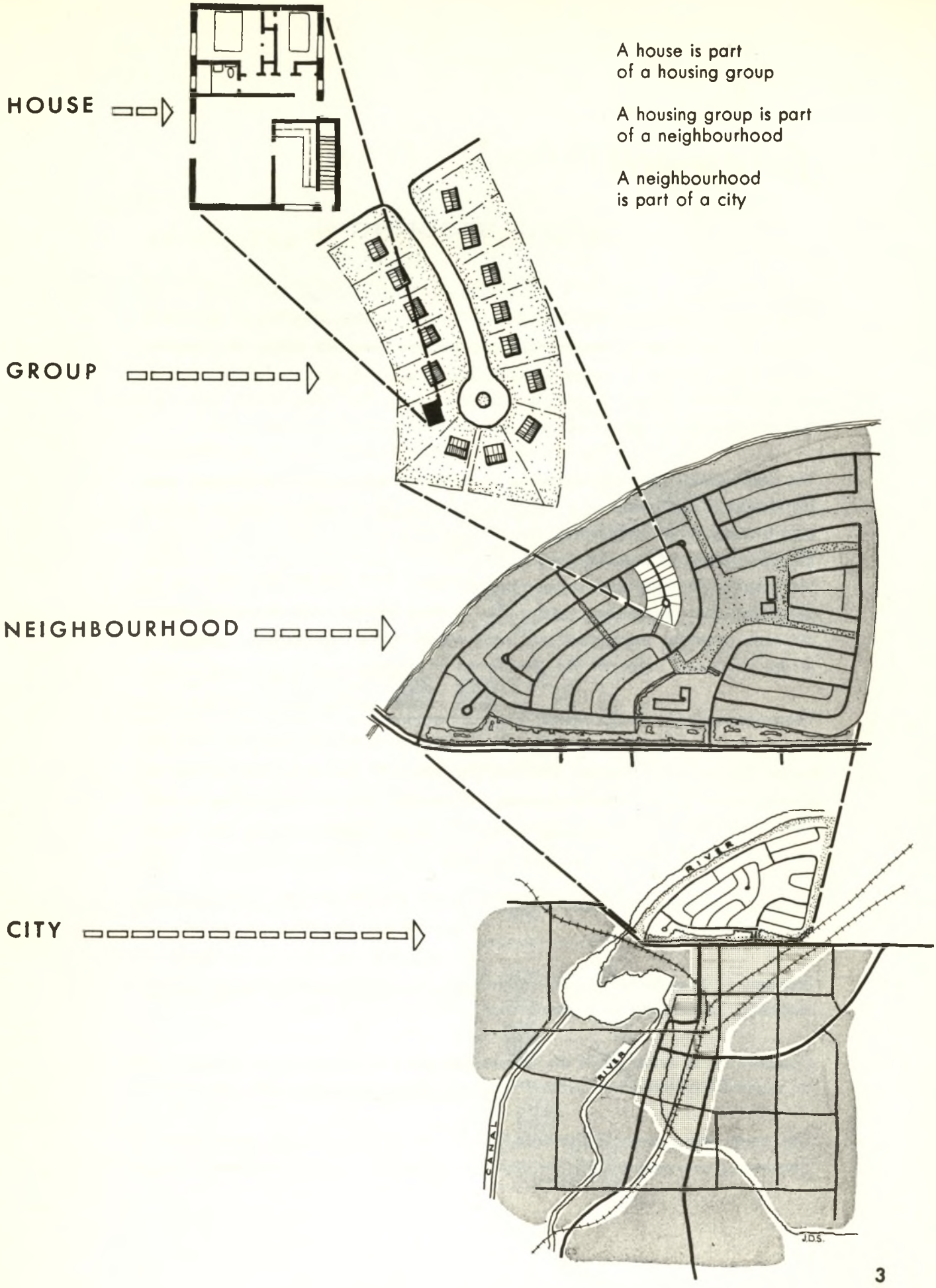
foreword

FROM HOUSE DESIGN TO CITY DESIGN

House Grouping is an intermediate step between house design and the larger process of planning residential areas and whole cities. It involves architectural design, site planning and community planning.

This interdependence is demonstrated by the difficulties of effective grouping of houses on the common grid plan. The finest individual house design cannot overcome the limitation of straight streets at right angles to one another; here the houses have to be set out in straight rows without end and every street is a traffic route. A more satisfactory setting is provided when a residential area is planned so that groups of houses can be set on comparatively short access streets. Then each group is removed from the main traffic circulation and has a certain amount of privacy and individuality. This kind of setting is only possible when a whole neighbourhood has been carefully designed so that each successive land subdivision and street will fit into the whole scheme. Successful house grouping is therefore an outcome of sound community planning as well as a result of careful site planning and good individual house design.

A HOUSE IS PART OF A HOUSING GROUP
A HOUSING GROUP IS PART OF A NEIGHBOURHOOD
A NEIGHBOURHOOD IS PART OF A CITY


HOUSE
GROUP
NEIGHBOURHOOD
CITY
A house is part of a housing group
A housing group is part of a neighbourhood
A neighbourhood is part of a city
RIVER
RIVER
CANAL
J.D.S.

introduction

HOUSE GROUPING

A small house on a city lot is a unit within a larger design. The house is part of the fabric of the city, tied together by streets and services, just as the family is part of the whole community tied together by links with school and business and social interests. But more immediately each home and its family are part of that smaller group of people who live along the same street. They face one another across the street and are neighbours in the closest sense.

The convenience and attractiveness of each house is largely dependent upon the design of the group as a whole. Each house has an effect upon the outlook and privacy of its neighbours. The placing of windows, doors and driveways, the observance of building lines to prevent the obstruction of light and views, the respect for style and proportion are all to be considered in creating an attractive and harmonious setting. The recognition of these common interests not only provides enjoyment and convenience for living but is also reflected in the continued value of the investment in housing.

The opportunity to design houses in groups occurs when a number of houses are constructed in a single building operation. This is the way in which a large proportion of small houses are now produced in residential areas. Housing developments may contain as few as a dozen houses or as many as a hundred. The builder has an opportunity to consider the design of each group as well as the design of each unit. In selecting designs three aims should be considered:

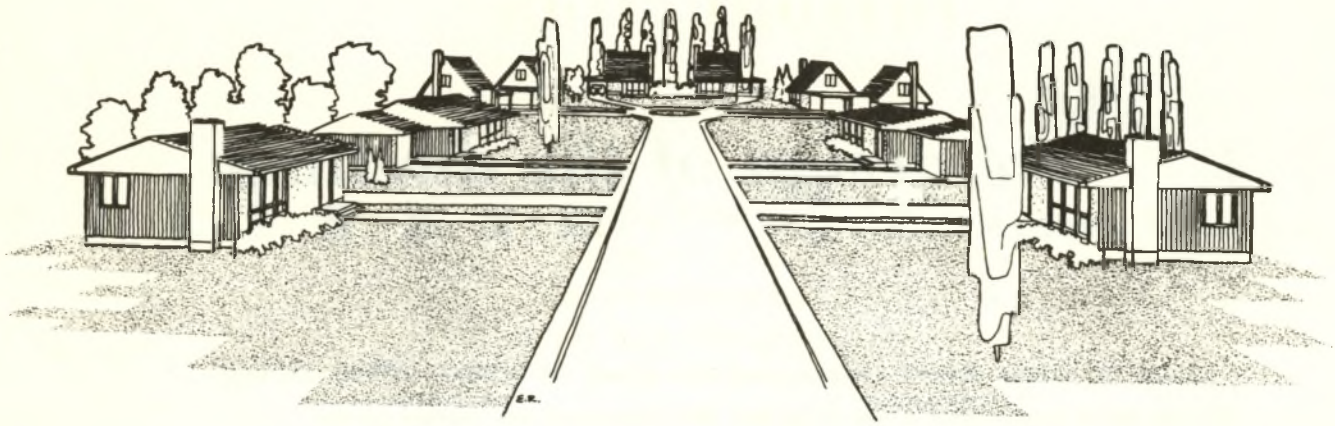
Variety — In order to avoid monotony, there should be sufficient variation to give individuality.

Economy — In order to simplify construction, it is desirable that certain identical materials, dimensions and component parts should be used.

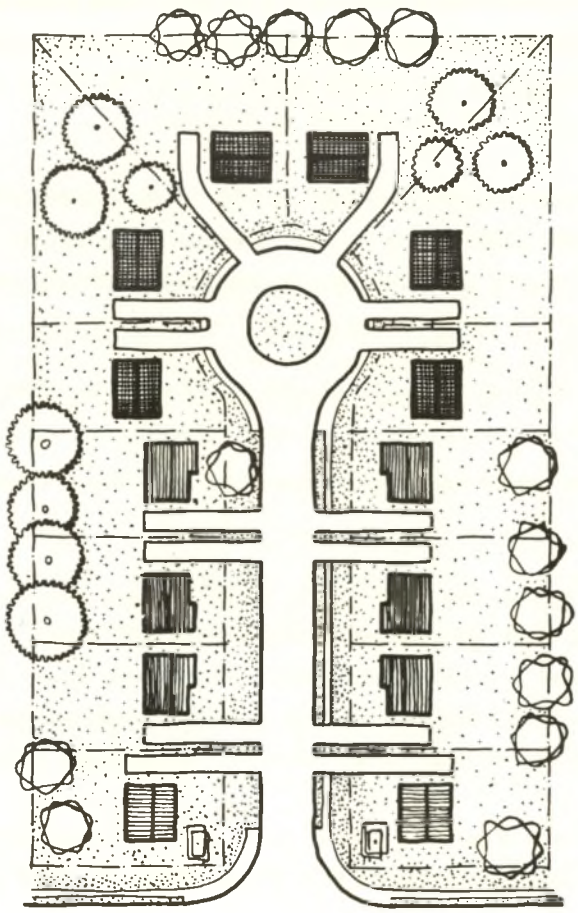
Grouping — In order to fit the houses into a pleasing group the designs must be carefully selected and placed in an effective relationship with one another.

This book offers some suggestions which may be helpful to house builders in discovering new and satisfactory solutions to the problem of group housing design.

A HOUSING GROUP IN A CUL-DE-SAC STREET



The convenience and attractiveness of each house is largely dependent upon the design of the group as a whole.



1 *the design of the dwelling*

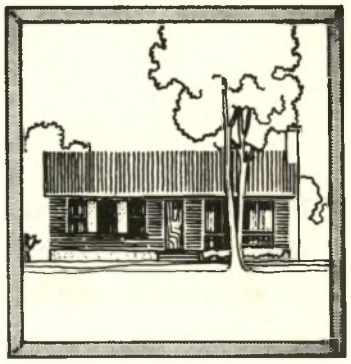
A group of houses should have a certain amount of variety without adding greatly to the cost and without losing the consistent character of the group as a whole.

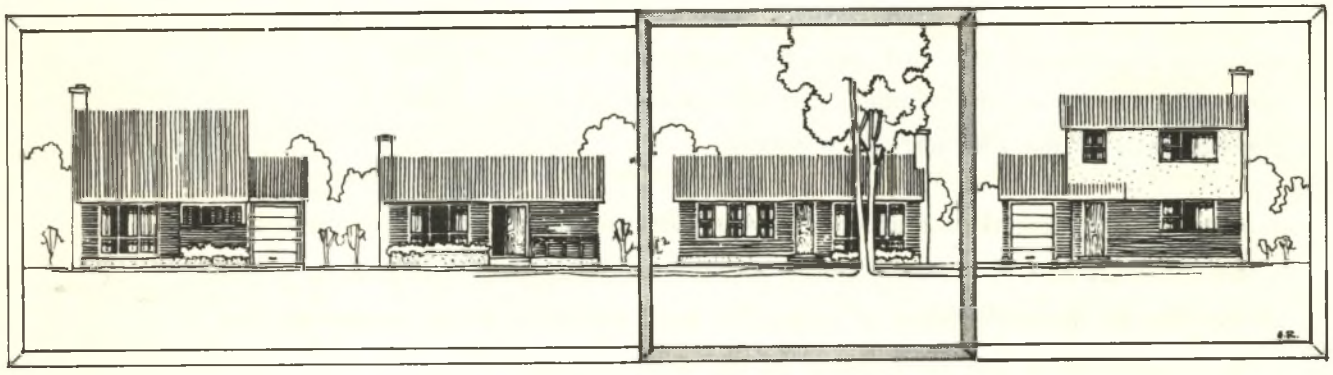
A group of four, five or six identical houses can be effective, pleasant and economical; some character and individuality can be provided, for instance, by different colours on front doors and by set-backs and landscaping, which includes the careful placing of trees. Too much variety in house designs can be as objectionable and monotonous as too little variety.

The need for two or three different house designs within a group does not arise unless the group is sufficiently large to justify some variation, or unless there are several groups within a housing development. When several designs are used some consistency of shape and character is desirable, the plans of neighbouring houses must not conflict with one another and some economies in building can be achieved by standardization of details and component parts. House builders require sets of house designs that fulfil these requirements.

The general principles of group-housing design are discussed here with reference to seven examples, each of which illustrates a different way of achieving both variation and standardization. These are shown on pages 20 to 31.

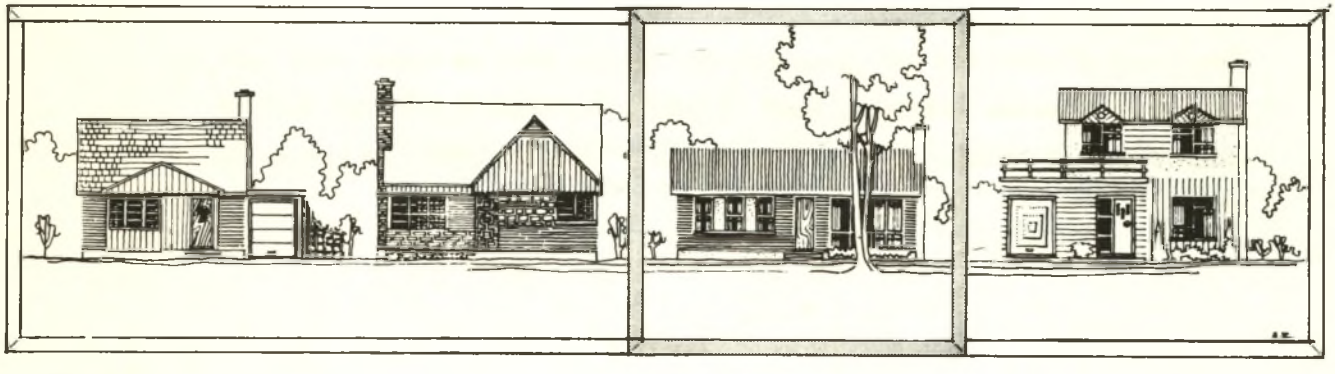
The small house on the city lot is not an isolated design but part of a larger scene.





ORDER

Houses within a group should be so designed that they bear a family resemblance and compliment one another. In this way the scene becomes one of harmony rather than a hodge-podge of shapes, materials and details which so often occurs.



DISORDER

PLANNING THE HOUSE

The inside of a house has to be divided up and furnished for all kinds of family activities — for cooking and eating and sleeping, for entertaining and relaxing and studying, for storage and household work. A house plan ought to have three dictinct zones for

living

sleeping

working

It should be possible to pass directly from one zone to another without going through the third. Also, the connecting halls, stairs and entries should use up the smallest possible amount of space. These are two tests of the efficiency of a plan.

In addition to cupboards in each room, there must be general storage space for luggage, screens, cleaning equipment, bicycles, garden tools and family possessions.

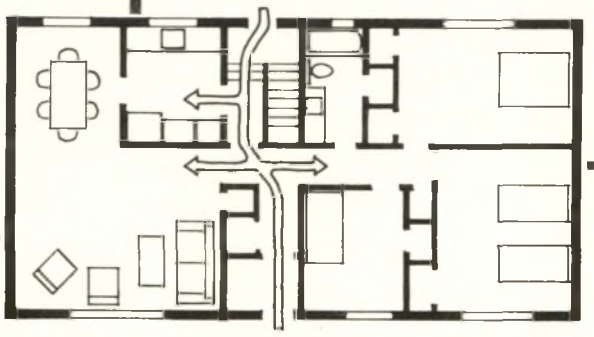
Besides efficiency and economy, a good plan should give a sense of space and freedom of movement. Well shaped rooms, careful placing of doors, windows and closets all go towards providing convenience in arranging furniture. Views from one room to another and views through windows all add to this sense of space.

A bungalow is generally more convenient than a two-storey house because space and energy are not wasted on stairs. But normally it does not provide such a complete separation of the sleeping zone. A two-storey house of a similar floor area occupies less ground space and has a smaller basement.

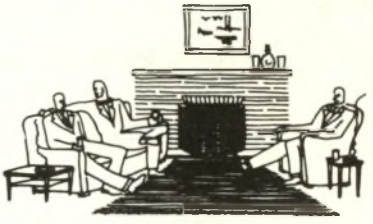
A split-level house provides separation of zones and also gives the greatest sense of space if the upper and lower floors are visible from the middle level. It generally offers the opportunity to raise the ceiling of the middle level which adds to the spaciousness.

WORKING

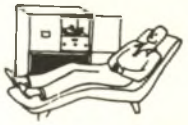
SLEEPING



A HOUSE ZONED FOR VARIOUS ACTIVITIES



LIVING



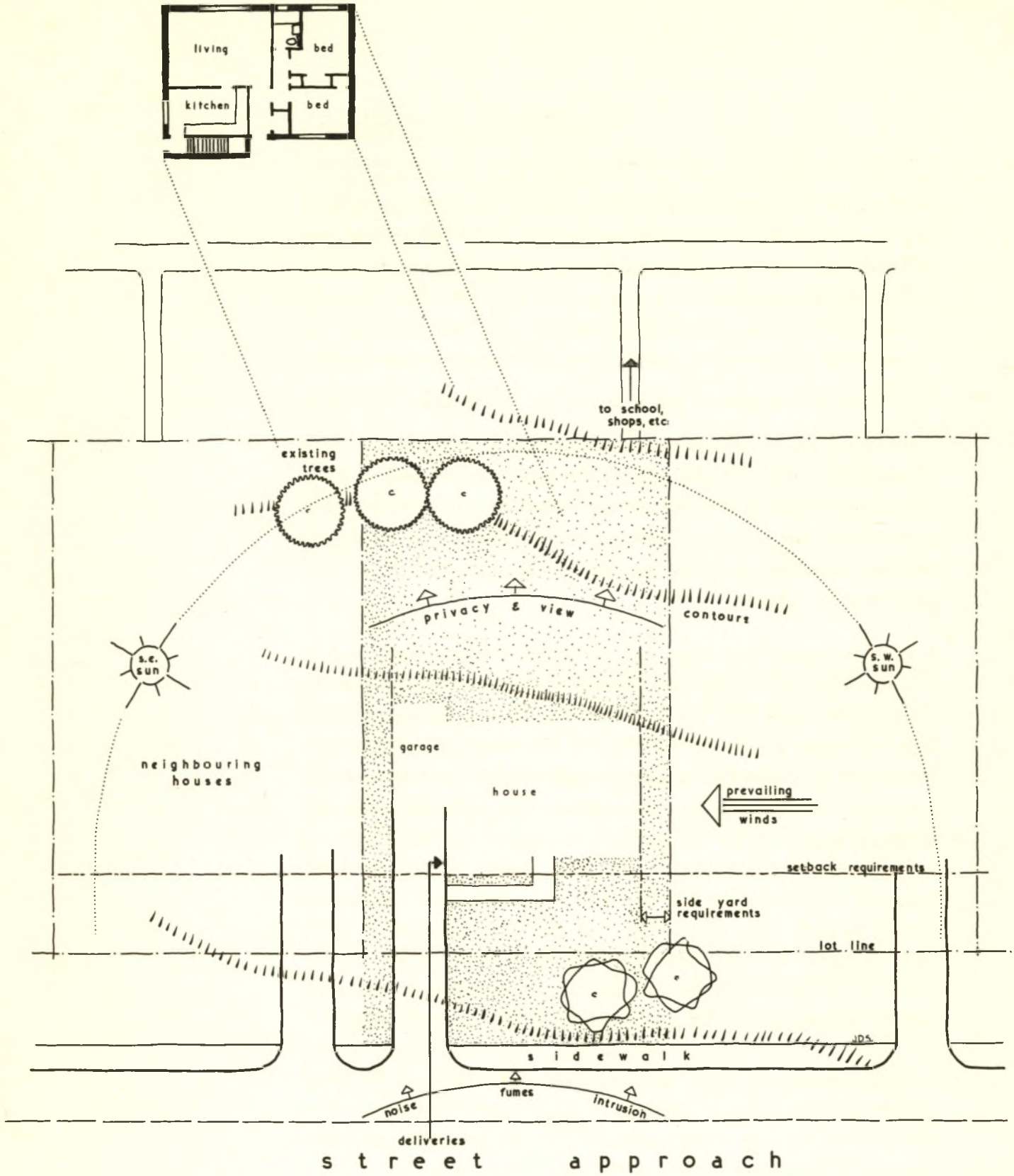
THE HOUSE AND LOT

The way in which a house is to be approached and entered should affect its internal plan. In most residential areas a house is approached only from the street, so the front door, service entry and garage must all be reached from that side. In some towns there are rear lanes and in some housing projects there is a walk at the rear which provides a safe route to school and shopping areas. In any case the street side of the house is exposed to public view and the other side is more private.

It has been the conventional arrangement to face the living room towards the street. But the small house has limited space and this can be expanded most effectively by facing the living room towards a garden at the rear. Then, without loss of privacy, it is possible to use large windows. However the question of orientation to sun and wind must be considered.

A southern aspect for a large window is desirable, because it admits a great deal of warmth and cheerfulness in the winter, when the angle of the sun is low, yet protection can be provided against the high angle summer sun. A western exposure is overheated in the summer, for while it is subjected to no more sunshine than the east, this sunshine is being radiated at the time of maximum heat in the day. The cold winds of winter and the hot winds of summer are generally from an easterly or westerly direction. The living areas of a house should therefore preferably be on the south side. Since houses must be placed on both sides of a street, it is obviously not possible in all cases to satisfy the requirements of orientation and also the requirements of aspect to private gardens. A plan suitable for the south side of a street is not likely to be suitable for the north side.

A garage should be placed so as to give easiest access to the house and the shortest length of driveway. It is least likely to obstruct views if placed at the side of the house. Its walls can serve the additional purpose of protecting a yard or outdoor living space.



FACTORS INFLUENCING HOUSE PLANNING AND POSITIONING

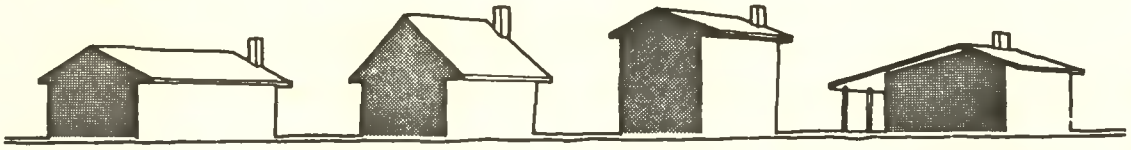
THE SHAPE OF HOUSES

Small houses are of four different types, each having a characteristic shape — bungalows, 1½-storey houses, 2-storey houses and split-level houses. The striking characteristic shapes, their height, proportion and the slopes of their roofs are architecturally more important than the details of design.

It is a general principle of good design that the simplest forms are the most effective — both in appearance and in economy. A house with a simple roof is better than a house with a complicated roof; it will appear to be larger, is more restful to the eye and will be more economical to build and to maintain. Plain wall surfaces and simple window forms give scale and dignity to a house.

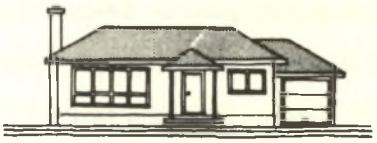
For the same reason it is more effective to design a group of houses out of similar and simple shapes than out of different and complicated shapes. Houses of the same form with the same roof-pitches and proportions can blend harmoniously into groups. In this way the group, as a whole, becomes the unit of design rather than the individual house.

The attempt to gain individuality and to avoid monotony by indiscriminately mixing houses of different design easily leads to an appearance of confusion. In fact, rows of different small houses are the most monotonous feature of residential areas and it is one of the purposes of house grouping to introduce a more interesting kind of individuality — the individuality of groups.



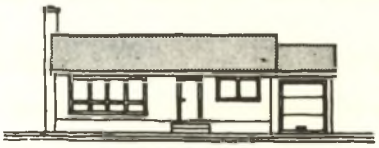
BUNGALOW 1½-STOREY 2-STOREY SPLIT-LEVEL

There are four different types of small houses and each has a characteristic shape.



COMPLICATED ROOF FRAMING

It is a general principle of good design that the simplest forms are the most effective both in appearance and economy.



SIMPLE ROOF FRAMING

It is easier to make an effective grouping of houses with units of similar shape, details and materials than with units of unrelated shape and size, and different details and materials.

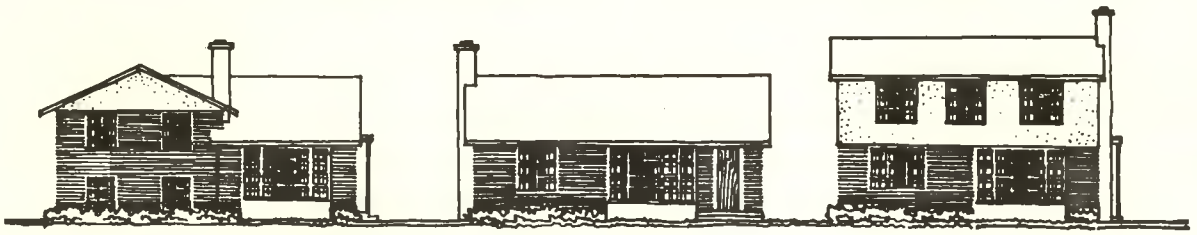
CONFUSION

HARMONY

EXTERIOR TREATMENT

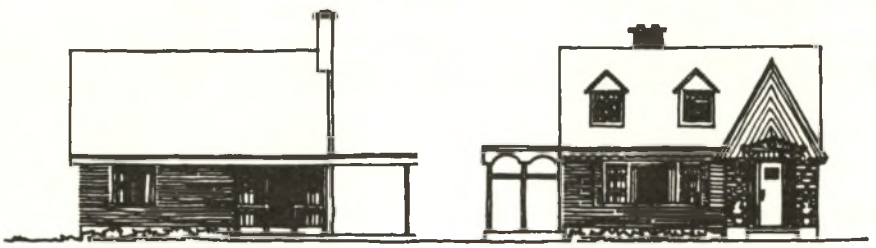
A group of houses can be given consistency and harmony through the use of similar details and materials. For instance, similar roof slopes and colour, similar design of gables and eaves, similar proportions of windows, similar treatment of porches can all give unity to a group. Some strong common feature, such as a picture window, may be used to blend houses of different types. The alignment of strong horizontals, such as the floor line, sill line, the heads of doors and windows and eaves can be used to tie a group of houses together.

Rows of single houses often look very confused and chaotic because too many materials and colours are used — stone, glass, asbestos shingles, brick, vertical and horizontal siding, shutters, wrought iron and other unnecessary ornaments. No single item is then effective. A simple and plain treatment will make each house appear larger, more distinguished and will make the whole group more harmonious.



USE A STRONG DESIGN ELEMENT TO BLEND HOUSES OF DIFFERENT TYPES

So often too many materials and colours are used over small areas on the exterior of houses. This creates a visual confusion where no single feature is effective. A house will appear to be larger, more attractive and distinguished looking if given a simple and plain treatment.



ORDER DISORDER

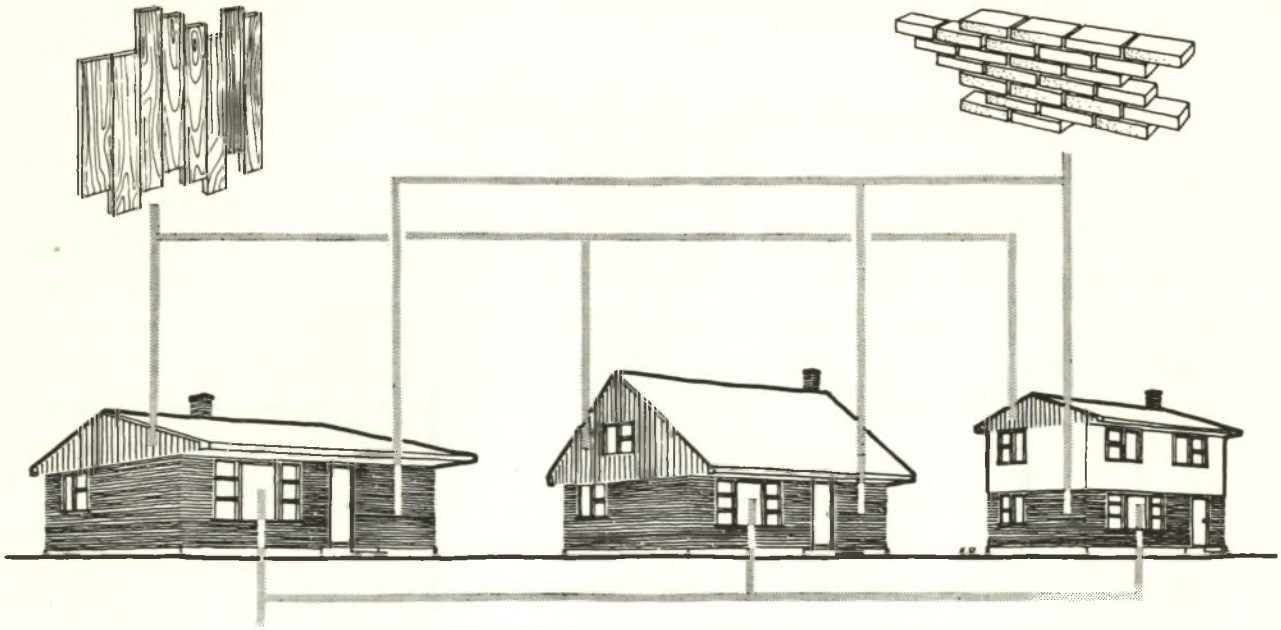
ECONOMY THROUGH STANDARDIZATION

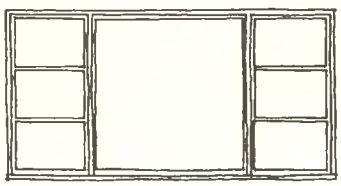
Economy in construction is one of the objectives of group housing. The extent of saving is determined by the degree of standardization of the components of the houses in the group. But when economy becomes the sole object of group housing, standardization is often carried to the point where one house plan is repeated over and over again, without variation, to constitute an entire housing group. The result is often monotonous. Any economy that might have resulted through standardization is lost through property devaluation. In order to provide an attractive and efficient grouping of houses and still obtain economies through mass production, there must be a careful balance between standardization and variety.

The component parts of a house which may be standardized include windows, doors, exterior and interior finishes, wall panels, framing, and interior fittings and equipment such as kitchen cabinets and plumbing fixtures. A group of houses of several different designs can incorporate the same standard components. Standardization of components does not necessarily lead to standardization of design. In fact standardization may contribute to the blending of different designs into a harmonious architectural effect.

Substantial economies can be achieved through the use of standard bathroom and kitchen planning. The use of a basic kitchen layout for an entire project may not be desirable from the point of view of salability. In such instances it is possible to design a series of cabinets that can be adapted to various layouts for different plan requirements. This system allows certain design freedoms while ensuring the economies of mass production.

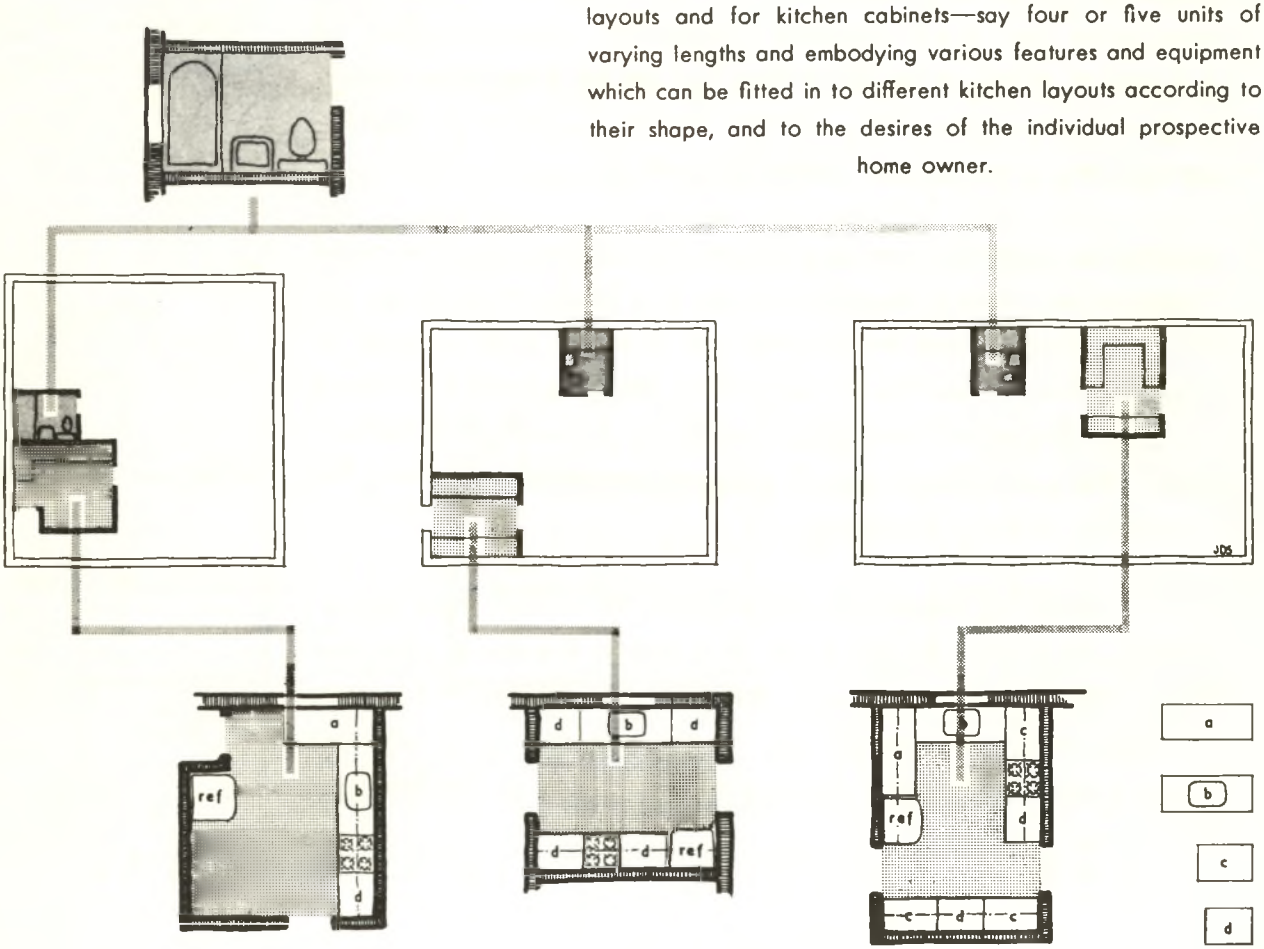
A more sweeping standardization occurs when a basic living-dining-kitchen unit is used for all houses in a group. Variety in plan and house type is achieved through the addition of different bedroom sections to the basic design unit. But the same structure, materials and fittings may be used for a good portion of all the houses in the group.

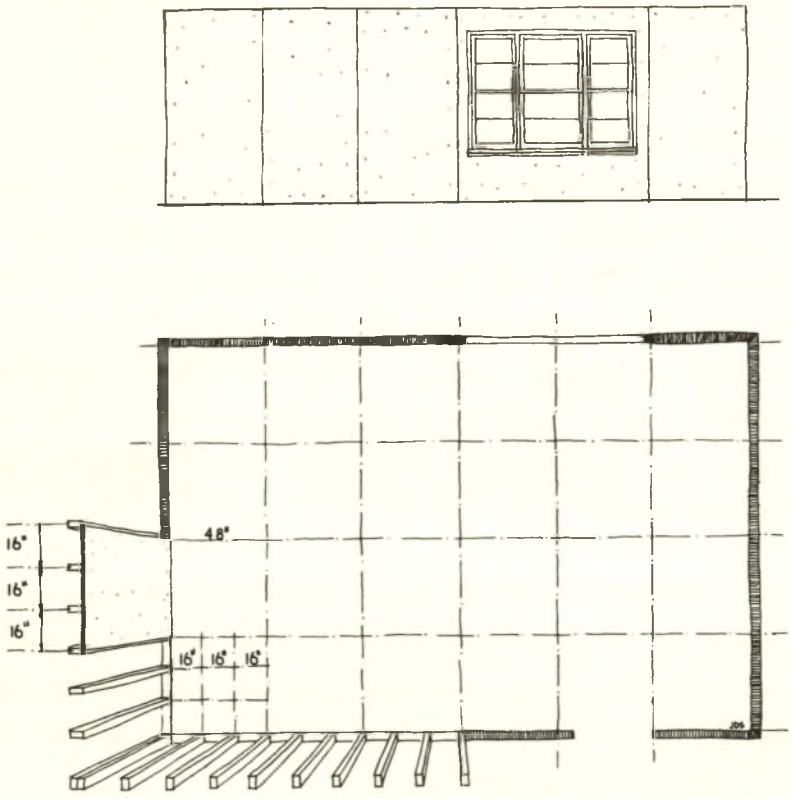




There are various component parts of a house which may be standardized. The degree of standardization within a project should be determined at the design stage in order to achieve the greatest economies.

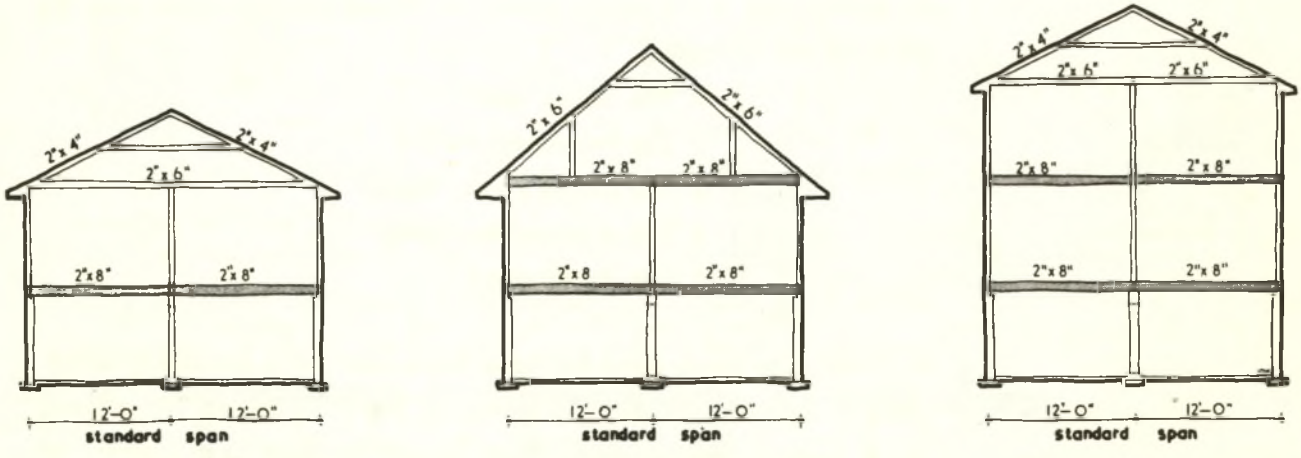
Standardization can be carried to a high degree for bathroom layouts and for kitchen cabinets—say four or five units of varying lengths and embodying various features and equipment which can be fitted in to different kitchen layouts according to their shape, and to the desires of the individual prospective home owner.





Because so many building materials come in even multiples and divisions of the linear measure, a 4" module is often used. This figure lends itself to being multiplied and divided, and its multiples to being squared and cubed. A planning grid based on its multiples can be adopted. Detailing of joints of like and unlike materials can be standardized, as can cross-sections and lengths of certain materials. Flexibility need not be sacrificed. Many prefabrication systems are modular, and are highly flexible. If dimensional co-ordination is to be adopted, considerable attention must be given to its detailing in the very early stages of design. Nevertheless, distinct economies can be gained by all concerned as a system evolves and is put into repetitive practice.

MODULAR PLANNING



STANDARDIZED FRAMING MEMBERS

Using a module as the basis of design makes standardization possible without limiting plan variations. A module of 4″ is generally accepted as the most satisfactory unit of design. The spacing dimensions of conventional framing are multiples of this figure and most wallboards come in sizes that are also multiples of this basic 4″ module. The feature of the system is the saving of material and labor that results from planning interior areas to fit standard materials. Cutting and fitting of materials is minimized, making for faster installation and less material waste.

The fixing of standard spans for ceiling and floor joists in all houses in a project will present savings by limiting the variation in lumber dimension and making larger orders of specific lumber sizes possible. By standardizing joist lengths to known sizes of lumber, unnecessary cutting is avoided and less waste occurs.

▪ ▪ ▪

This brief discussion on standardization illustrates only a few of the ideas that should be considered during the design stage of any group housing project. It has been seen that to approach the problem of developing a successful group of houses consideration must be given to the following:

1 The house plan
2 The house and the lot
3 The shape of the house
4 The exterior treatment
5 Standardization

In addition to these considerations there must be a careful arrangement of each house to its neighbours. This is furthered by a good street pattern and neighbourhood layout. To meet and combine all these factors calls for a high degree of co-operation amongst developers, skilled professionals and local government officers.

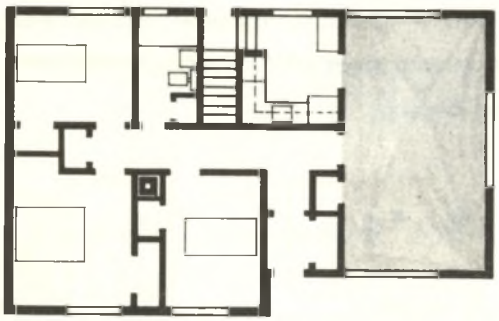
2 design examples

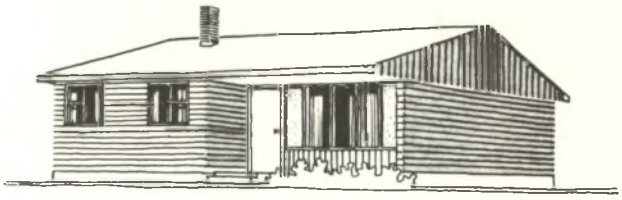
On the following pages are illustrated seven examples of the way in which variations of design can be derived from prototypes. They have been prepared by architects for grouping purposes. They incorporate most of the ideas previously discussed and illustrate some of the possibilities for achieving harmony, variety, efficiency and economy in group projects. They range from the simplest to the more complex methods of obtaining both variation and standardization. They are intended to suggest some of the possible approaches to the problem.

Group Design I

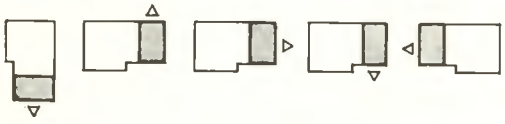
Architect—Edwin Raines,

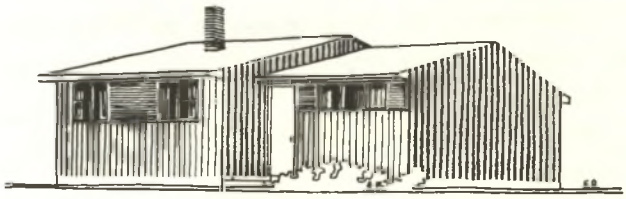
This design is suitable for small projects of about a dozen houses. By using the same plan in various positions the greatest economy is possible through complete standardization of materials and structure.



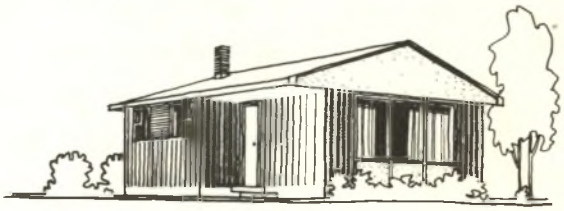


The special feature of the plan is the adaptability of the aspect of the living room. Whichever way the plain is turned the principal windows can be given the desirable view.



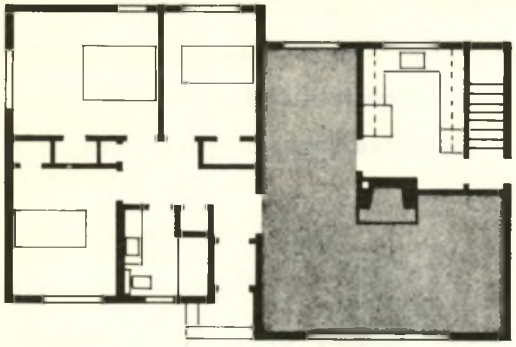


Variations in the shape of the house can be achieved by changing the roof structure. A further change in appearance can be obtained by turning the house so that its gable end is to the street. The three perspective sketches illustrate some of the varieties of exterior treatment that can be derived from the single plan.

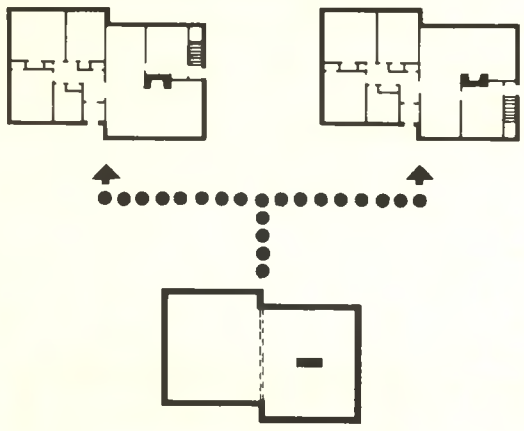


Group Design II

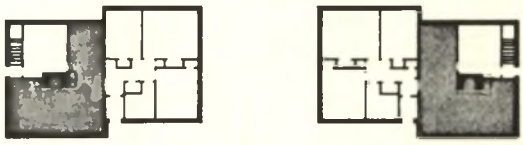
Design by—Central Mortgage and Housing Corporation

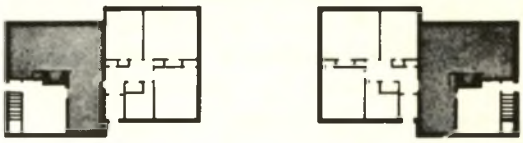


This design provides variation in room arrangement while maintaining standard construction and materials. The plan consists of two basic parts, one of which may be reversed. One part contains three bedrooms and a bathroom; the other part contains the living room, dining room and kitchen. This reversible feature makes the house adaptable to any orientation as well as giving some variety in appearance and plan arrangement.

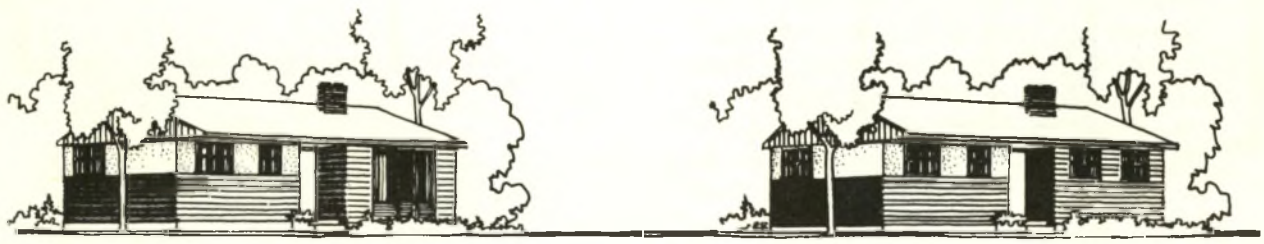


While providing for changes of internal plan the design maintains all the advantages of material and equipment standardization. The change effected by reversing the living-dining-kitchen part does not affect the basement plan. The identical basement area and foundation walls are used for both arrangements.





This design may be used to produce house groupings that are both attractive and economical. By reversing the whole house plan, four orientations of the living area are possible. If changes in mass are desired it is possible, by eliminating the set-back and aligning the two basic sections, to provide a rectangular plan shape.

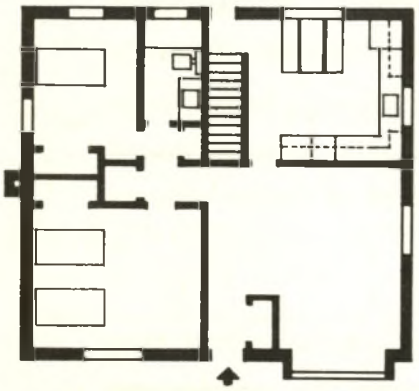


Group Design III

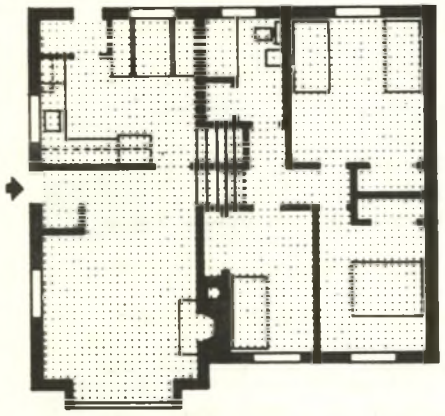
Architects—Murray Brown & Elton

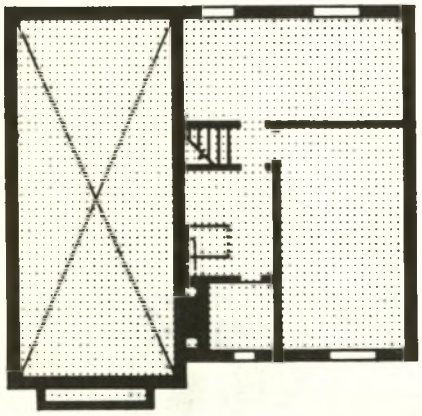
These houses demonstrate how three different house types may be used in the design of housing groups. The aim is to obtain consistency of architectural character to harmonize three different architectural forms.

The group consists of a two-bedroom bungalow, a three-bedroom split-level and a three-bedroom two-storey house. The plans have no similarity in layout or in dimensions — they are three entirely different structures.

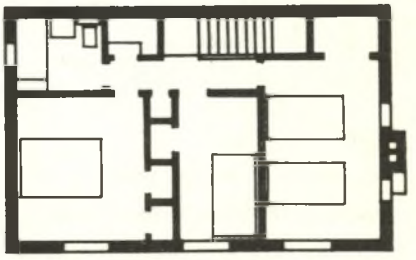


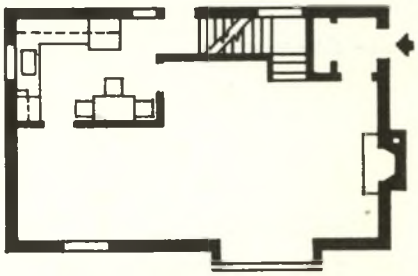
TWO BEDROOM BUNGALOW





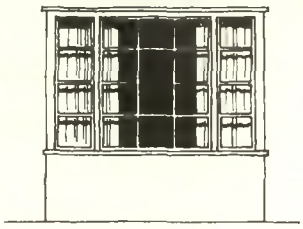
THREE BEDROOM SPLIT-LEVEL



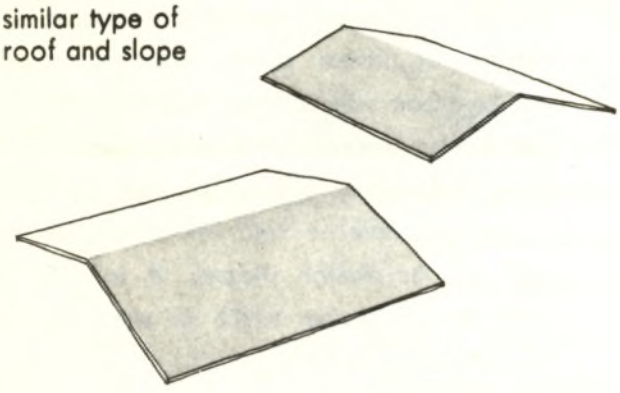


THREE BEDROOM 2-STOREY

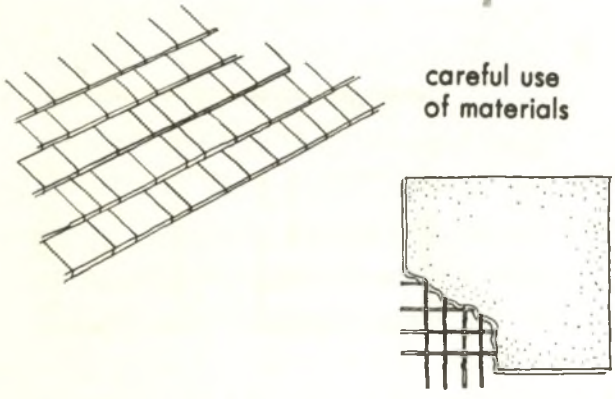
Similar windows

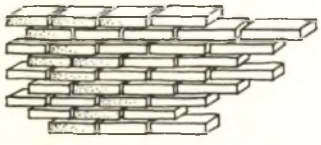


similar type of roof and slope

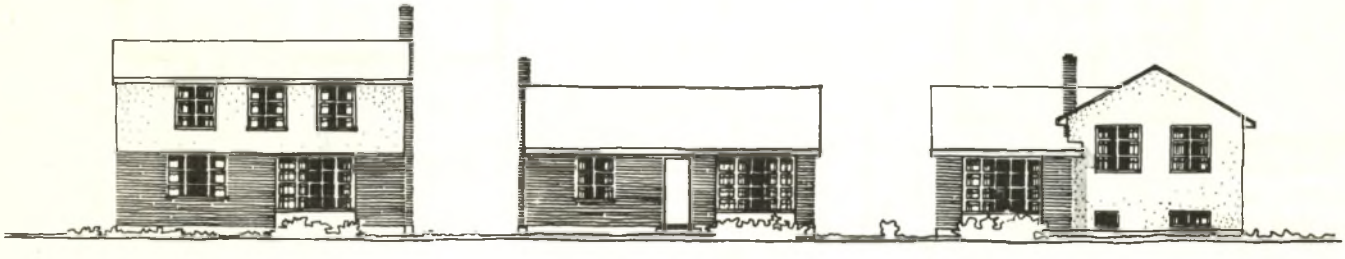


careful use of materials





UNIFIED GROUPING



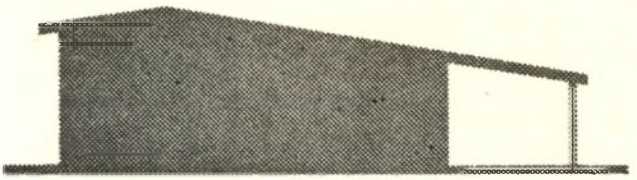
As a means of obtaining consistent architectural character the same design of living-room window is repeated in the three houses. This projecting bay window is an architectural feature which is strong enough to be a unifying element in the group. The harmony in the design of the three houses is further enhanced by the repetition of similar windows and doors.

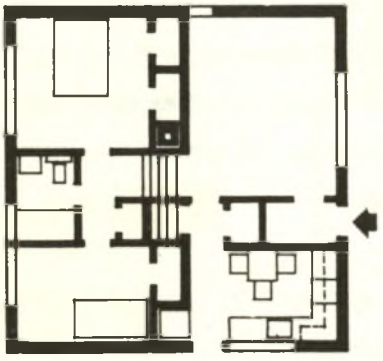
A simple gable roof of uniform pitch is used throughout. This, together with the discriminating and repeated use of a few well chosen finishing materials combines to form three houses that, despite their differences in plan and shape, blend into a unified group.

Because the shapes of these three houses are so different, special attention must be given to their arrangement in groups. It would not be effective simply to mix them at random.

Group Design IV

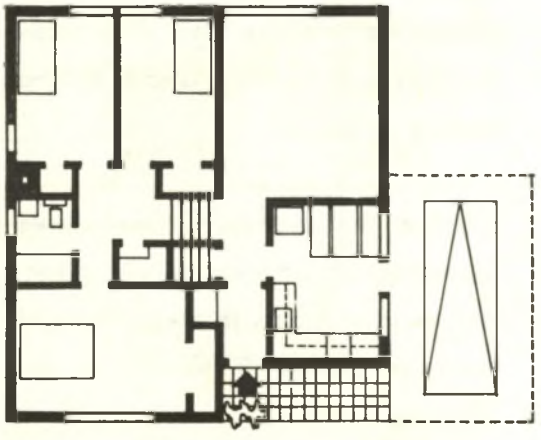
Architects—Rother, Bland, Trudeau





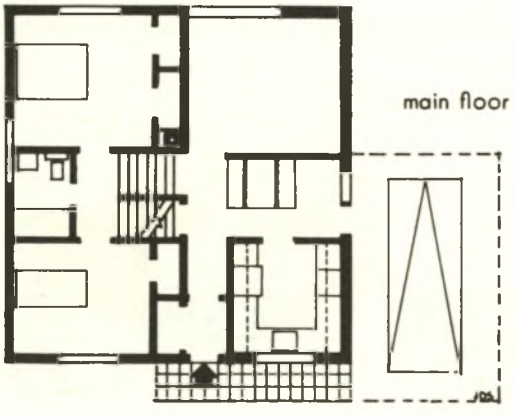
TWO BEDROOM SPLIT-LEVEL

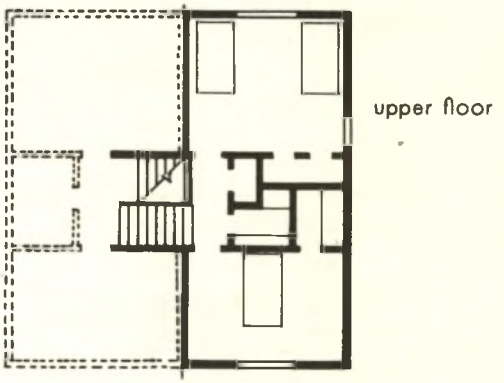
This form of group design provides a variety of house plans including a two-bedroom unit, a three-bedroom unit and a four-bedroom unit. Although the plans differ they are all of one type — the split-level — and are therefore enclosed in similar shapes. It is this similarity of shape which is used as the unifying element.



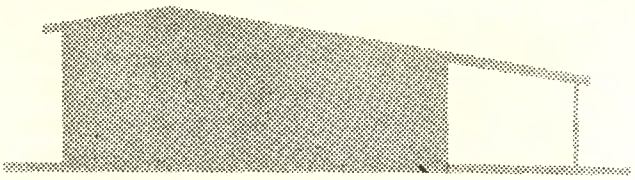
THREE BEDROOM SPLIT-LEVEL

Some economy may result from the fact that all houses have similar construction characteristics, though standard dimensions are not used for all three plans. Although there is a certain standardization of framing members no attempt has been made to standardize lengths. Glass sizes, doors and finishing materials are repeated in the three designs.

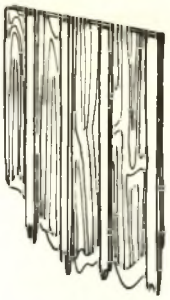


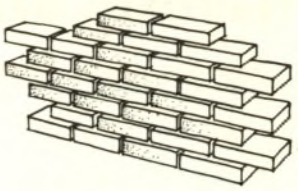


FOUR BEDROOM SPLIT-LEVEL

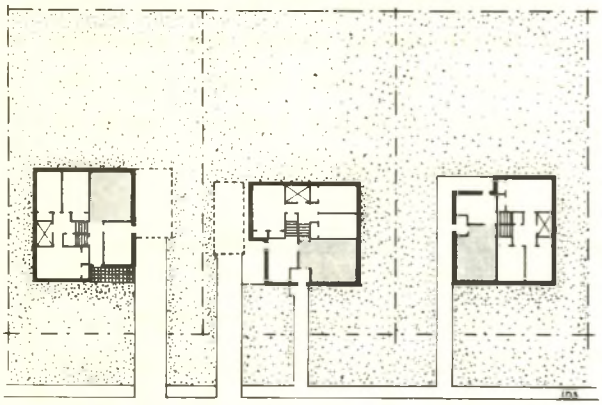


THE SHAPE IS THE UNIFYING ELEMENT



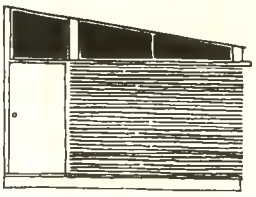


Good use
of materials
and
standard windows



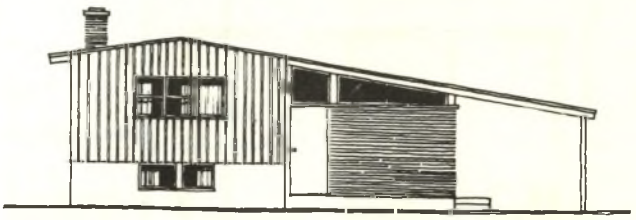
+

architectural
treatment



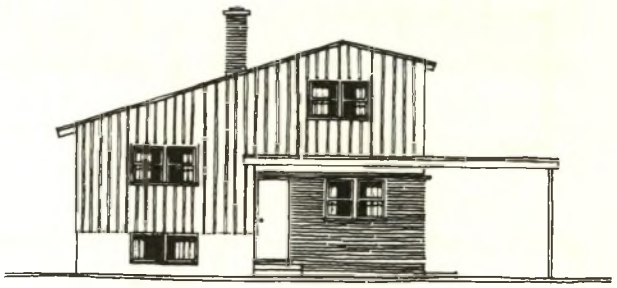
=

THREE DIFFERENT HOUSES
THAT GO TOGETHER

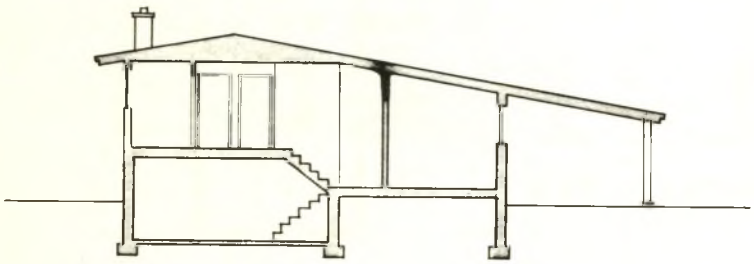


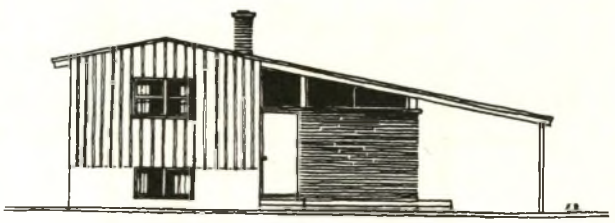
THREE BEDROOM HOUSE

Each house has been designed so that with minor alterations in door and window placement it may be located three ways on the lot. This provides the required variety in composition and to some extent offers variety in plan arrangement. Such flexibility also permits proper orientation for all houses.



FOUR BEDROOM HOUSE





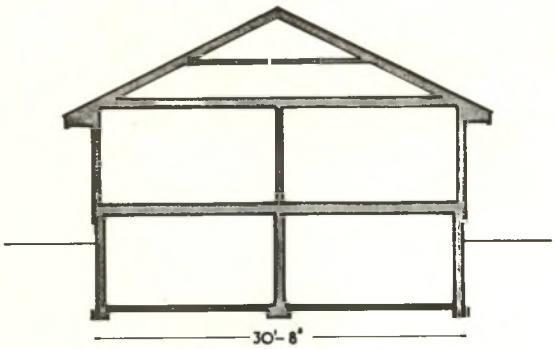
TWO BEDROOM HOUSE

Group Design V

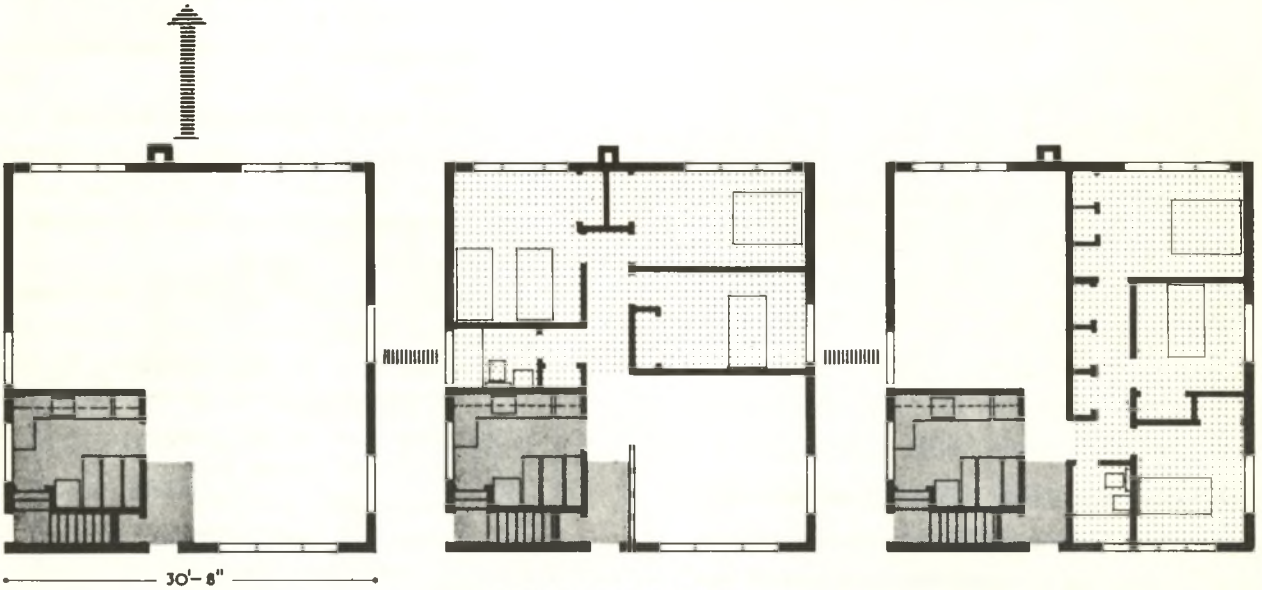
Design by—Central Mortgage and Housing Corporation

This group design, while offering special opportunities for standardization of construction, provides four different plans — two 2-bedroom bungalows and two 3-bedroom bungalows — all contained within an identical structural shell, with a span of 30′-8″. Framing members used for one house will consequently fit the other three.

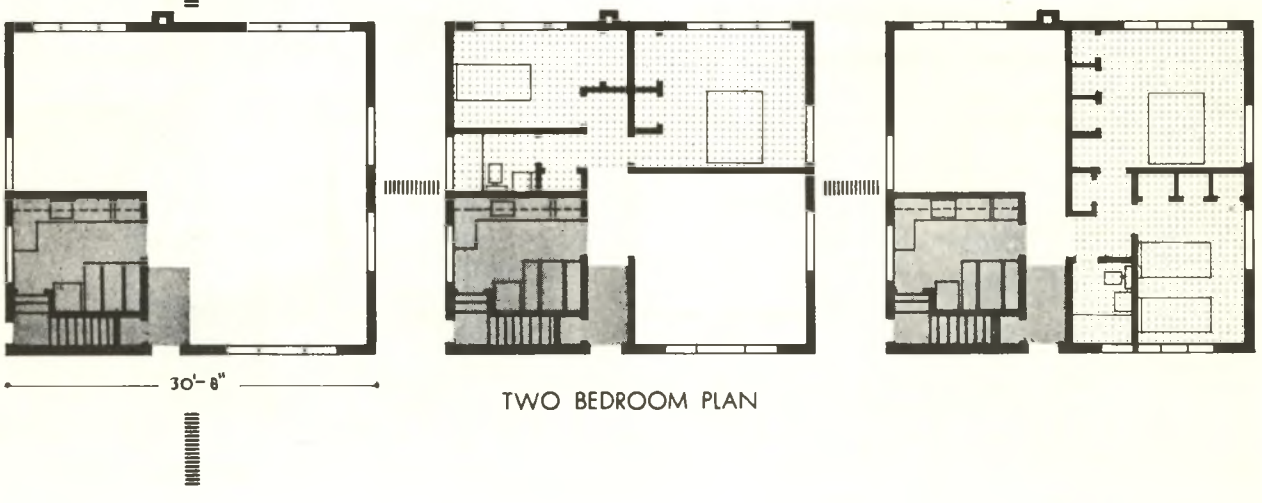
Both of the two-bedroom houses have identical walls and wall openings. The same holds true for both of the three-bedroom houses. Standard windows are used throughout and the same kitchen plan is repeated in all four houses. The central bearing partition in all houses makes it possible to erect the four walls and roof quickly, leaving all other interior partitions to be erected after the shell has been completed.



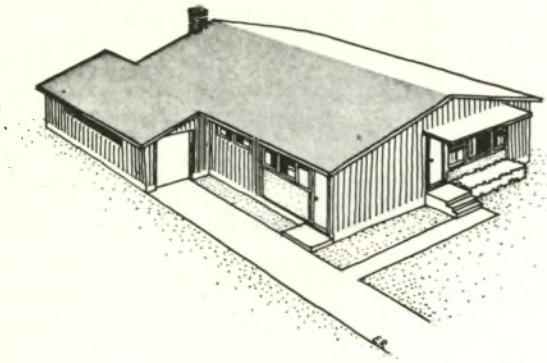
IDENTICAL STRUCTURAL SECTION

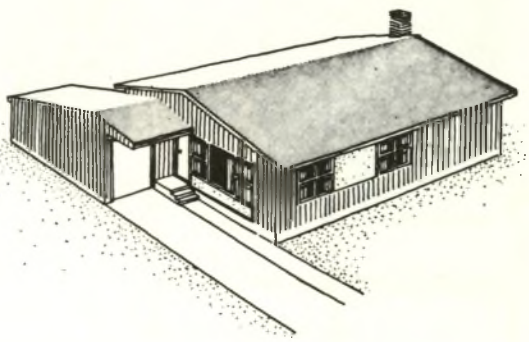


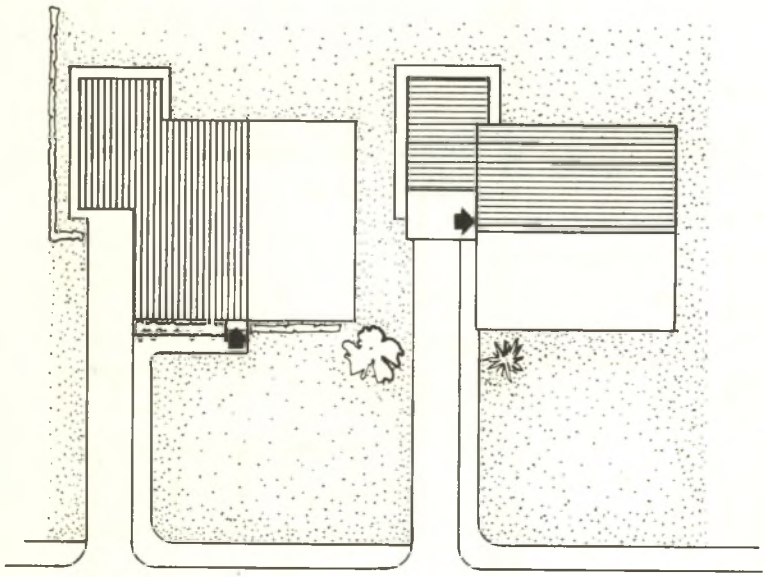
THREE BEDROOM PLAN



TWO BEDROOM PLAN

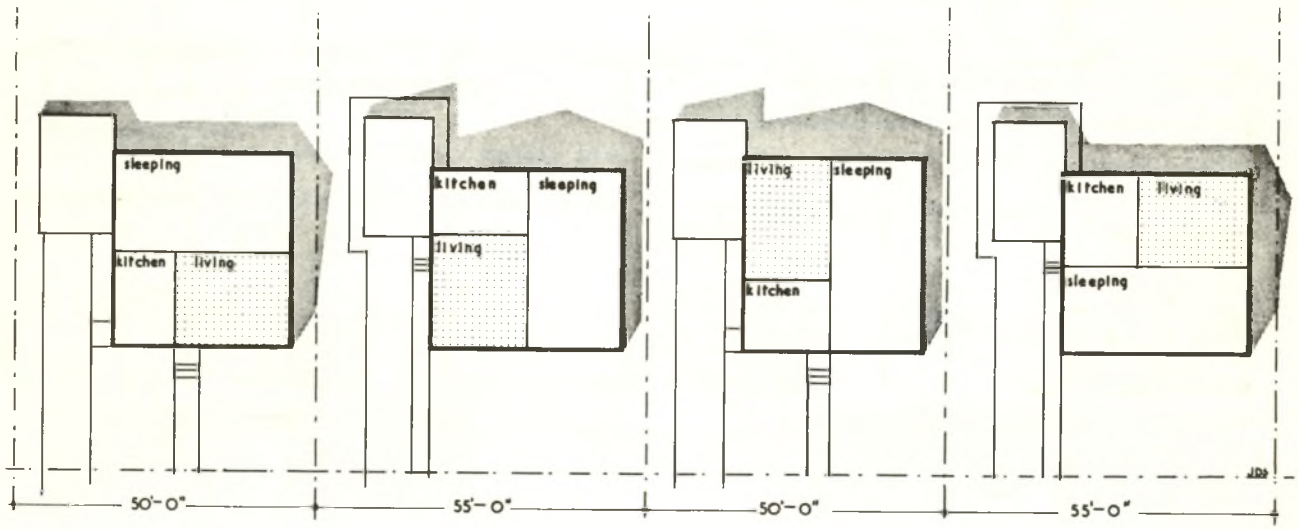






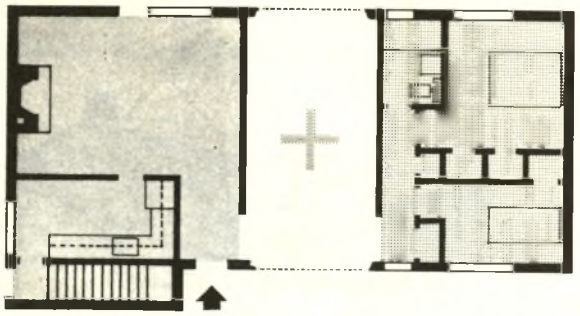
To provide variety of composition two types of attached garages may be used. One when the gable end of the house faces the street, the other when the long elevation faces the street. The use of an open carport will provide another variety of composition.

The houses are designed so that either a two-bedroom plan or a three-bedroom plan is available for any orientation. By using the two positions of the front living-room design and the two positions of the rear living-room design, four lot arrangements are possible, each providing a different living-room exposure.

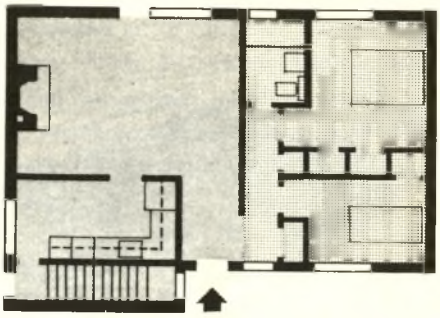


Group Design VI

Architects—John B. Parkin Associates



BASIC UNIT

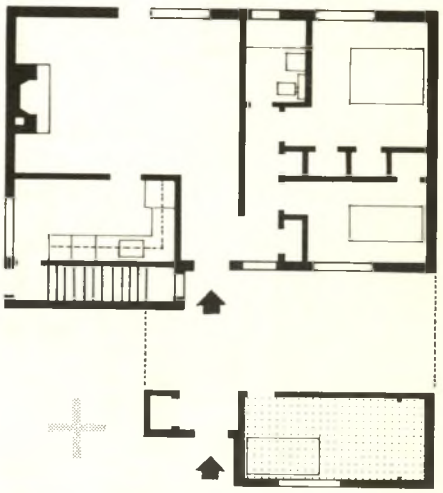


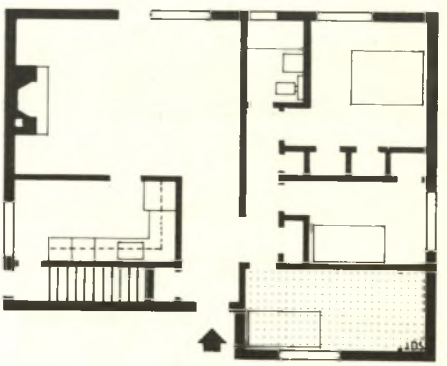
TWO BEDROOM BUNGALOW

This group design employs two house types, the bungalow and the split-level. Each consists of a basic kitchen-dining-living unit to which alternative bedroom sections may be added.

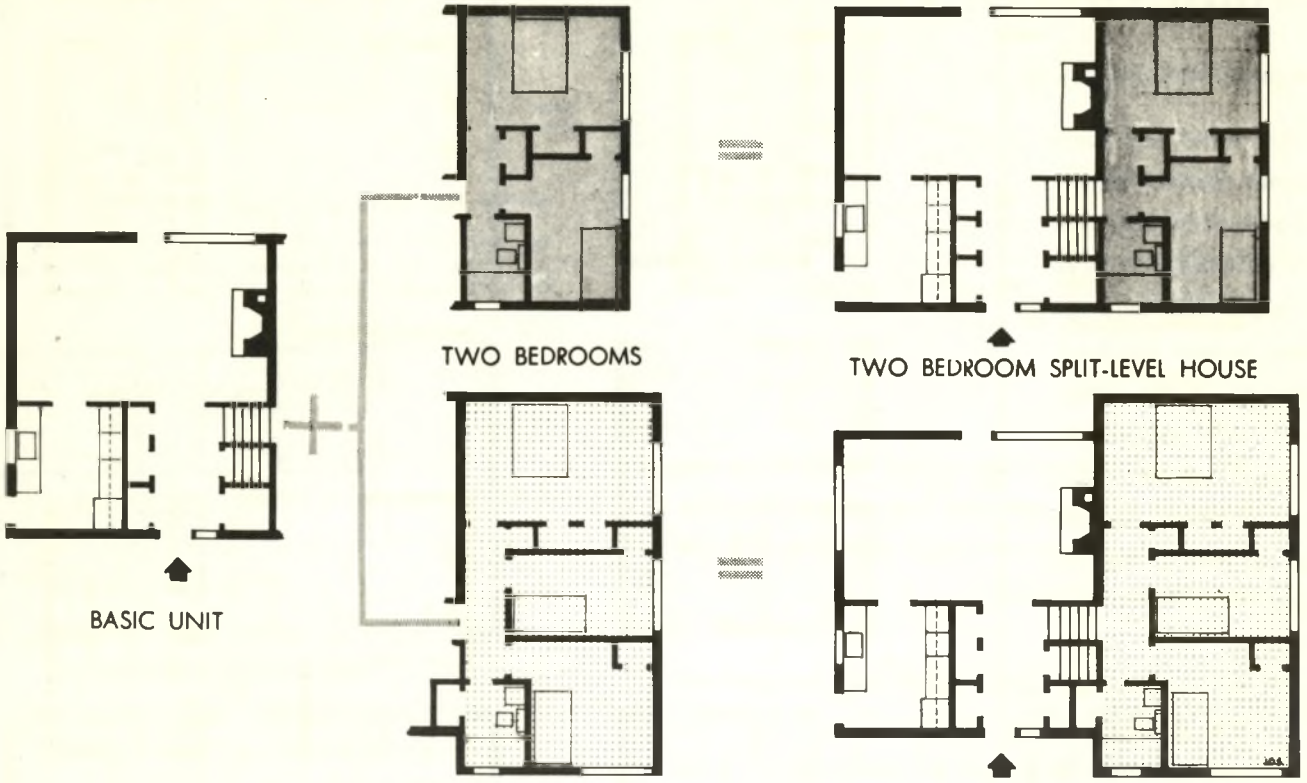
The bungalow units differ slightly from the split-level units in their method of development. The two-bedroom house is formed by combining the basic kitchen-dining-living section with a section containing two bedrooms and a bath. The three-bedroom house is formed by adding a third bedroom and entry to the two-bedroom house. So this not only provides a standardization of materials but also offers an expansible plan.

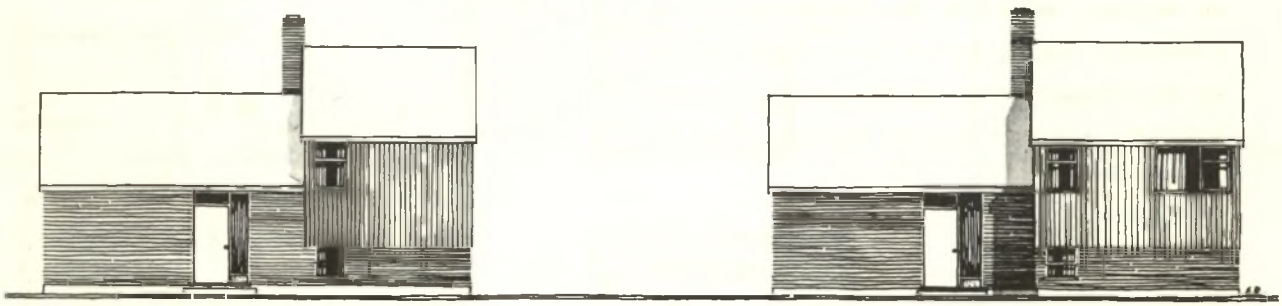
The split-level units do not have this expansibility but they do develop from a basic unit containing the kitchen, dining and living areas. Two different bedroom sections have been designed, one containing two bedrooms and bath, the other three bedrooms and bath. Either of these units may be combined with the basic unit.





THREE BEDROOM BUNGALOW



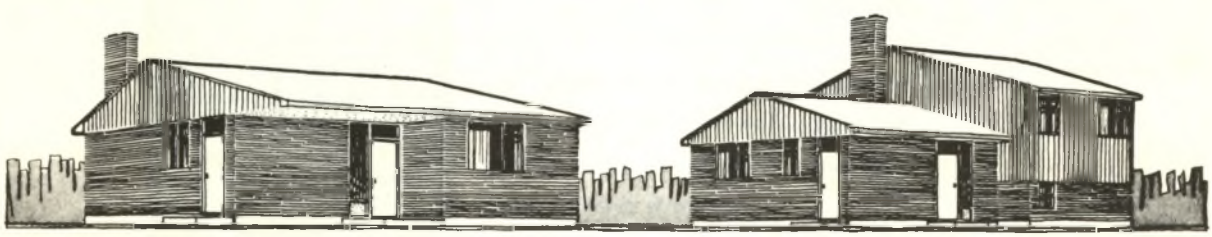


TWO BEDROOM SPLIT-LEVEL HOUSE

THREE BEDROOM SPLIT-LEVEL HOUSE

The teature of this design is the economy achieved by repeating identical framing materials, finishes and equipment within each basic unit. As a result, standardization is achieved without limiting plan flexibility.

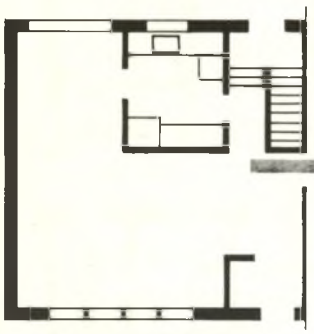
The grouping potentialities of the designs stem from the simple architectural character of the houses — a result of restrained use of materials. The use of standard windows, the similarity of architectural detail and the repetition of a few good materials should combine to produce a harmonious grouping of houses.



Group Design VII

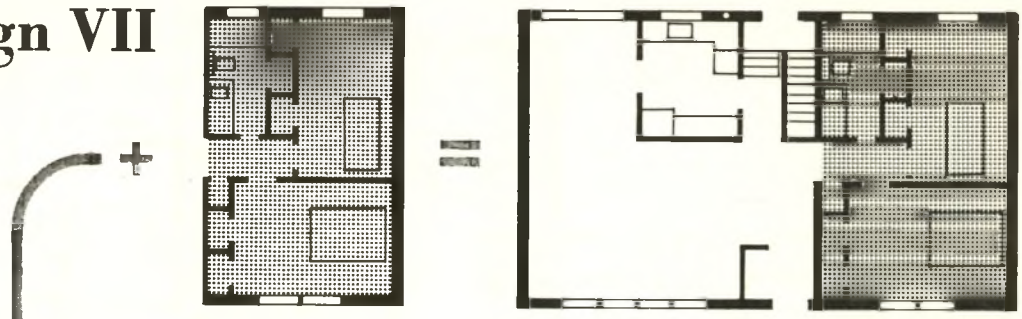
Architects—Wilson & Newton

In this series of house designs a standard kitchen-dining-living unit forms the basis of all the houses. To this basic unit may be added a two- or three-bedroom bungalow section, a two- or three-bedroom split-level section, or a three-bedroom second floor to form a 2-storey house.

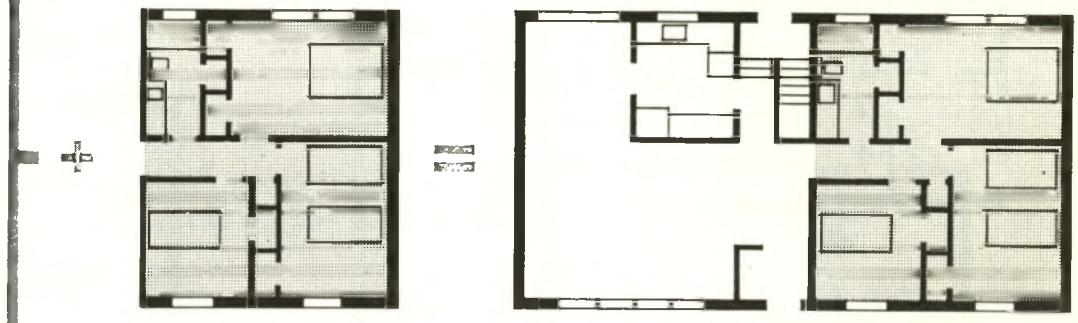


BASIC UNIT

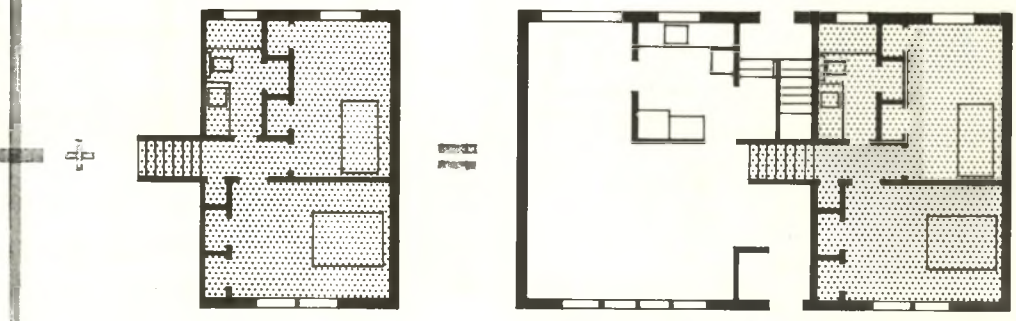
The basic unit can be altered to provide a series of plans with rear living rooms by the simple expedient of re-arranging the kitchen area.



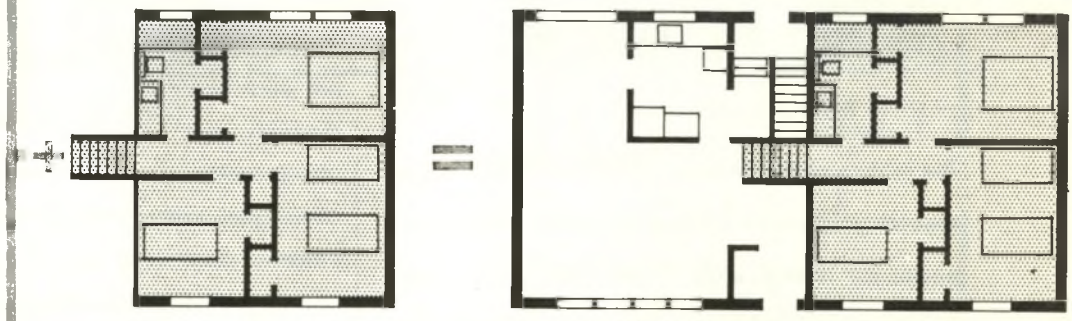
TWO BEDROOM BUNGALOW



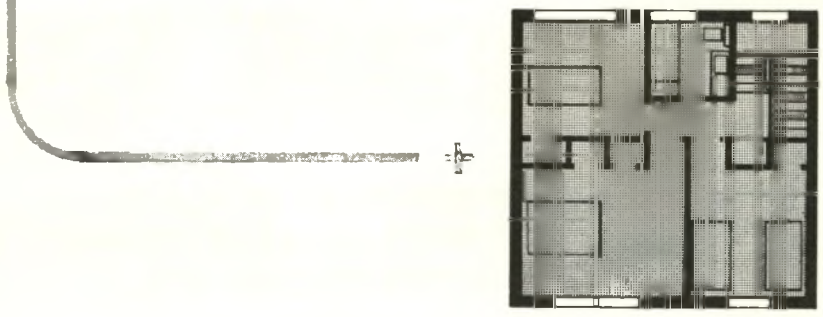
THREE BEDROOM BUNGALOW



TWO BEDROOM SPLIT-LEVEL HOUSE

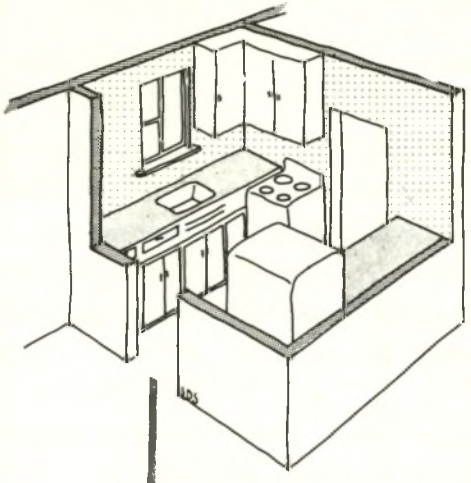


THREE BEDROOM SPLIT-LEVEL HOUSE



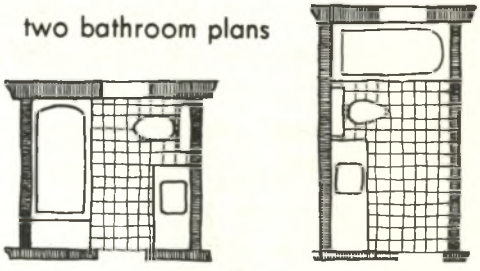
THREE BEDROOM TWO-STOREY HOUSE

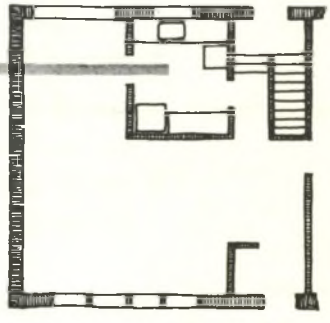
The value of this group design is that certain parts of the houses are standardized and yet great variety of bedroom accommodation is provided. As the kitchen forms part of the basic unit, an identical layout may be used for the five different houses. Standard windows, doors and finishing materials are used for the basic portion of all the houses in the group. Floor and wall framing materials may also be standardized.



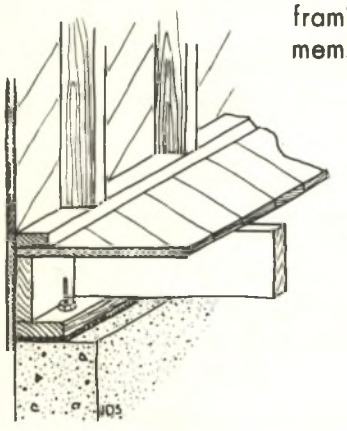
Similar kitchen layouts

two bathroom plans



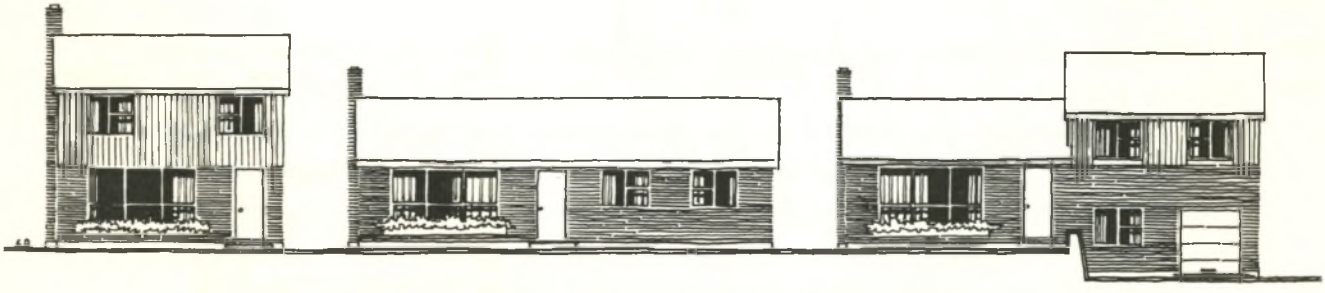


standard framing members



standard windows

standard finishes



The repetition of the basic unit and the similar roof pitches of the various additions provide a consistency of shape and character.

3 *design of housing groups*

CIRCULATION

The street system for a residential neighbourhood should be designed to meet the following requirements of safety for motorists and pedestrians:

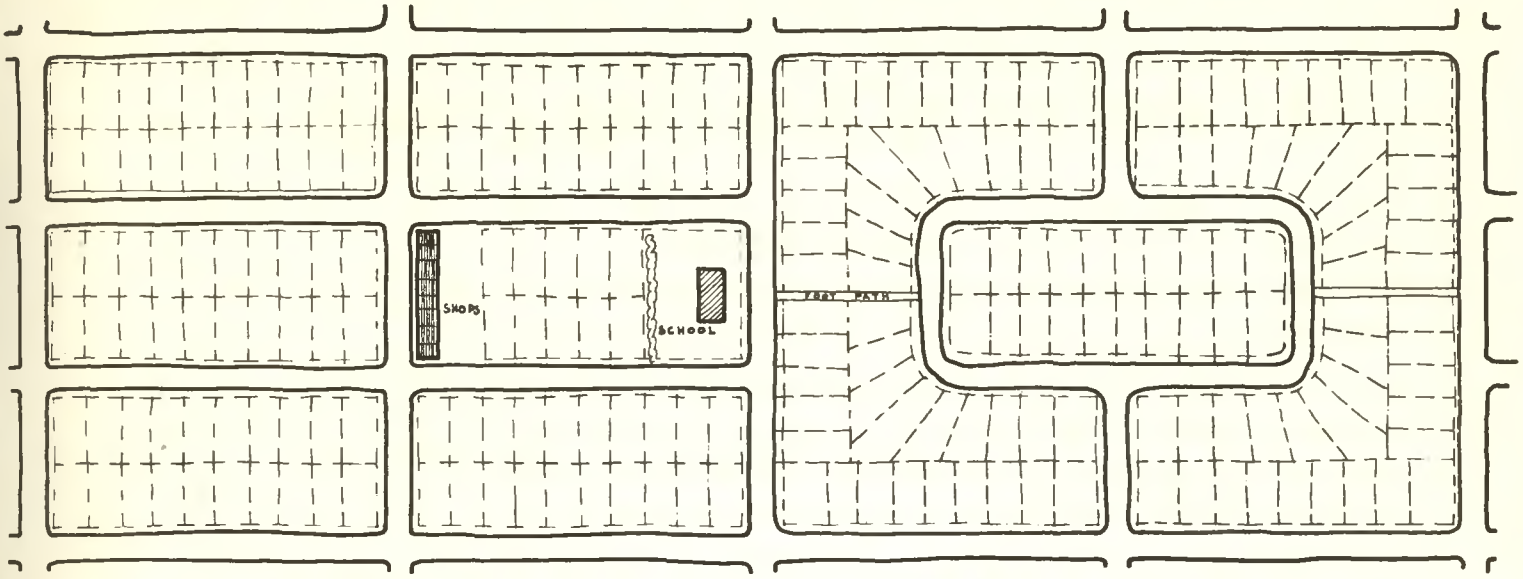
1 There should be the smallest number of points at which local traffic enters main traffic arteries.
2 The streets within a neighbourhood should discourage traffic cutting through the area.

The grid system of street layout is unsatisfactory because it invites traffic to move in all directions and therefore multiplies traffic hazards and reduces the privacy of residential streets. It is also an expensive system because all streets must be constructed to take a heavy traffic load. Though to some extent traffic can be controlled by street signs and road widths, it is preferable to design a neighbourhood street system which recognizes different kinds of traffic. For this purpose it is useful to distinguish between the following types of street:

1 Major Thoroughfares — these are urban highways which provide rapid and direct communication between all parts of the community and connect with inter-city highways.
2 Collector Streets — these are for the circulation of traffic within a neighbourhood and to collect traffic for entry into major thoroughfares at controlled points.
3 Minor Residential Roads — these are to give access to the properties facing on to them and to serve as the setting for groups of houses.

In certain types of neighbourhood plan it is further possible to segregate pedestrian from vehicular traffic by providing walks from each group of houses to the school, shopping centre, playground, etc.

Topography frequently determines the direction of the flow of the sewers and so influences the design of a street layout. The nature of the landscape may also determine the location of the open spaces and school site. Finally the points of connection between collector streets and major thoroughfares will be determined by consideration of the flow of the traffic within the city as a whole. Out of all these inter-related requirements will emerge the design of a well planned neighbourhood as a convenient setting for groups of houses.



STANDARD GRID SYSTEM

—No separation of pedestrian and vehicular traffic

—All roads used for all traffic purposes

—All lot sizes standard

MODIFIED GRID PATTERN

—Some separation of pedestrians and vehicles by provision of foot paths

—Channelling of traffic—less road

OPEN PLAN

—Pedestrians and vehicles separated

—Roads planned for specific uses

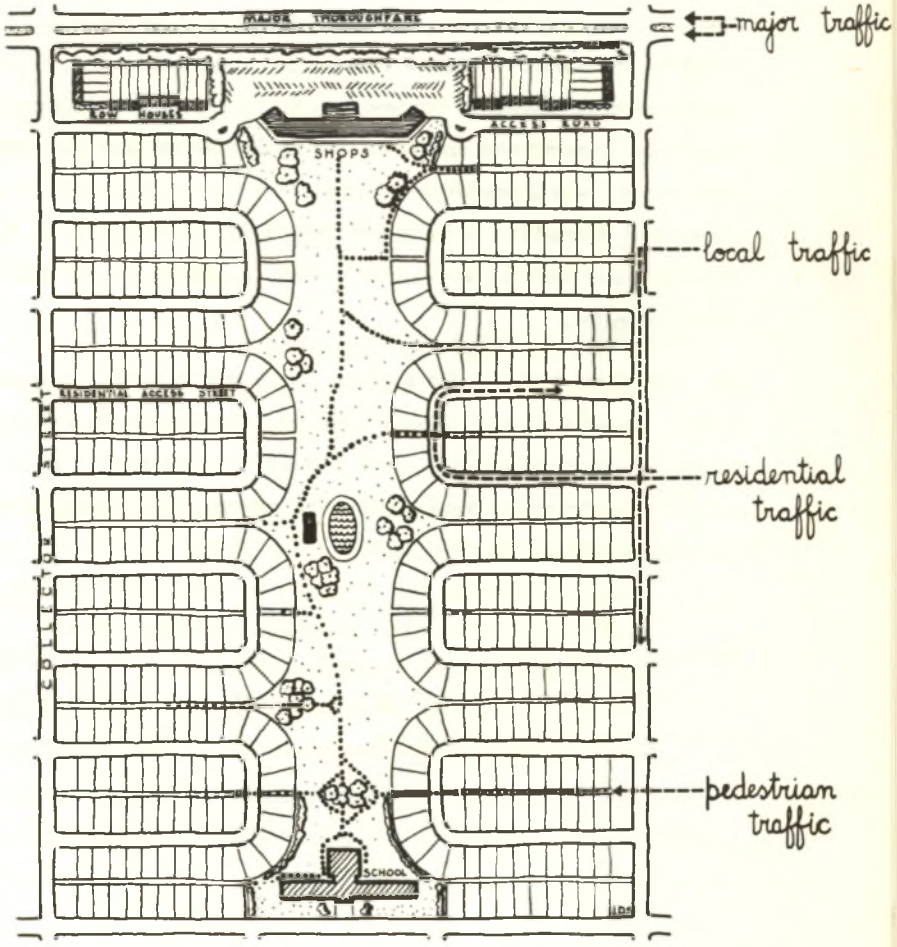
STREET TYPES

Major thoroughfares

Collector Streets

Access roads

Minor residential roads



RESIDENTIAL STREETS

The pattern of streets and lots set out by the land subdivider provides the framework for groups of houses. Many interesting and individual street arrangements can be devised by considering the shape and contours of the land and by properly routing traffic.

The grid street plan is a handicap to effective house grouping and relief can only be obtained by occasional set-backs and the use of planting to conceal the monotony of the plan. On the other hand the street plan of the subdivision should be simple and straightforward; it should arise out of a reasonable and economical use of the space with an eye for the appearance and architectural effects of the buildings to be placed there.

Curved streets have a pleasant and natural effect, particularly when they are justified by topographical conditions. But excessive use of curved streets on flat land may be both dangerous and uneconomical unless done with careful planning.

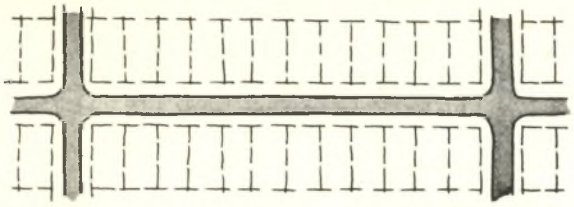
The dead-end or cul-de-sac street provides the most complete privacy and traffic separation. The closure of the street clearly distinguishes an individual group of houses, and by limiting the number of houses to be served it is possible to use a street of economical dimensions and light construction. The turning circle of a dead-end street should be not less than 80 feet in outside diameter. Also, in order to provide manoeuvring space for fire-fighting equipment and other emergencies there should be a space not less than 100 feet in diameter clear of trees and other permanent obstructions. A pedestrian lane from one turning circle to the next may provide additional egress; under normal circumstances this can be closed to vehicular traffic.

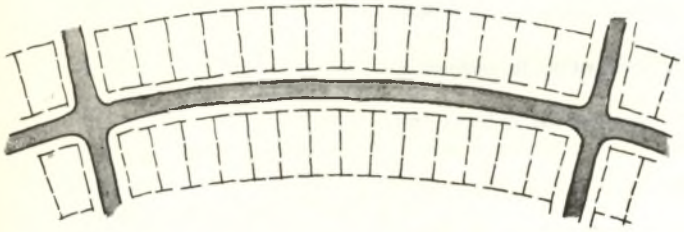
The loop street provides the privacy, safety and economy of a dead-end street without the difficulties of turning; traffic circulates easily to and from a collector street. The loop street in various proportions and shapes provides interesting opportunities for the grouping of houses, particularly if some park space can be introduced.

The need to provide off-street parking suggests a number of interesting opportunities for small house groups served by parking bays. Houses grouped around a quadrangle or motor court can have a very pleasant character and are economical in the use of public street space.

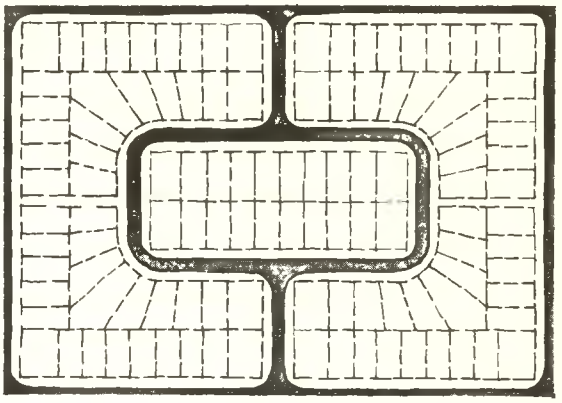
In setting out a pattern of residential streets a T intersection of streets is safer than a cross intersection because traffic on one street is brought to a halt. The special hazard of the grid plan is the multiplication of cross intersections.

RESIDENTIAL STREETS

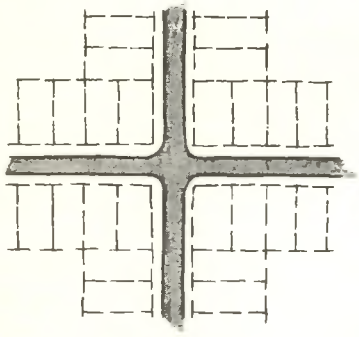




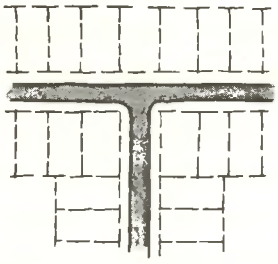
CURVED STREET



LOOP WITHIN A GRID ARRANGEMENT

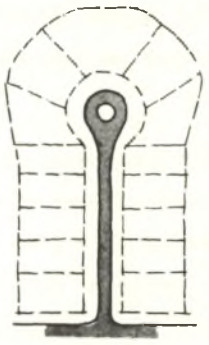


CROSS INTERSECTION

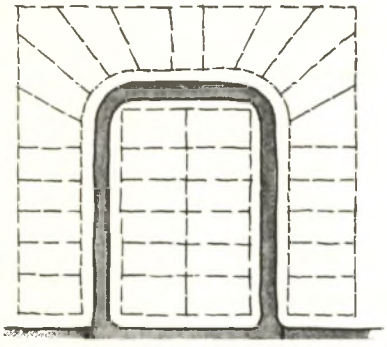


TEE INTERSECTION

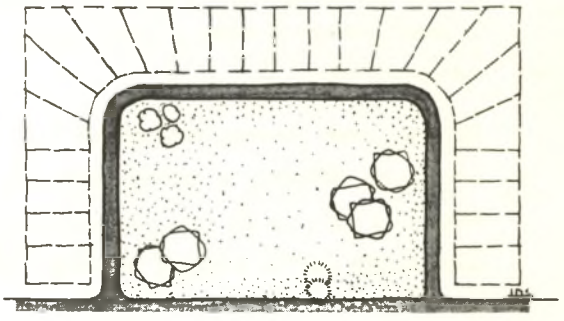
INTERSECTIONS



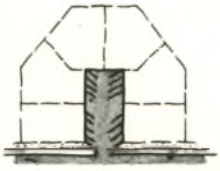
CUL DE SAC



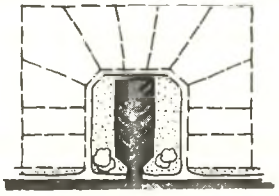
LOOP



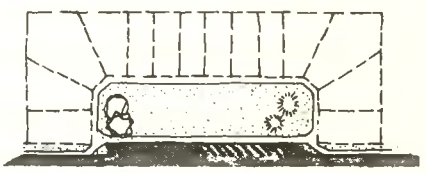
LOOP WITH GREEN



SIX LOT ARRANGEMENT



MOTOR COURT



PARKING BAY

BLOCK AND LOT PLANNING

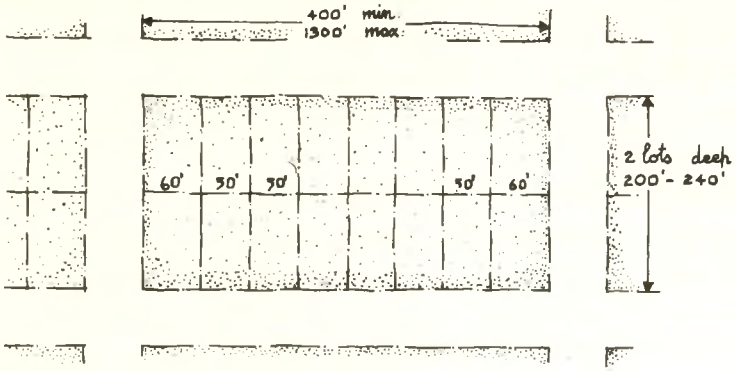
The plan of a land subdivision serves as a legal document by which parcels of real estate are described and registered and from which surveyors can identify lot lines and street lines. It is also a catalogue from which lots are sold. For these reasons a subdivision plan has a purpose quite apart from its ultimate use as a site-plan for the setting of houses. There is consequently a natural inclination to regard a subdivision plan as a pattern for slicing up raw land rather than as a basis for architectural and landscape composition.

Space requirements for houses have been greatly enlarged in recent years, in response to the demand for more light, air and privacy and from the need for garages and outdoor living space. This has added to residential land costs and to taxes on property. If possible, the widths of lots should be directly related to the dimensions of the houses to be built upon them.

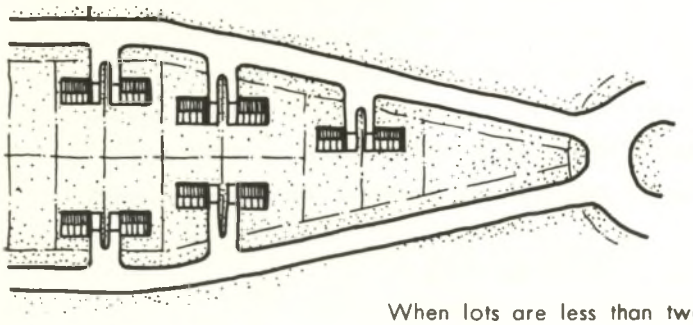
For instance a typical 1,100 sq. ft. bungalow financed under the National Housing Act has a frontage of about 40′. Normal side yards would increase this to 48′; an attached carport or driveway would mean a lot of about 60′. Two-storey and 1½-storey houses occupy less ground space and may be developed with a lesser use of street frontage.

The depth of lots are not so directly related with dimension of houses. Housing Standards prescribe minimum lot areas. Also there may be an increasing demand for deep lots arising as outdoor living is emphasized with living areas facing away from the streets onto private gardens. To meet this sort of requirement a lot depth of 120′ may be required.

For convenience in siting houses and in defining boundaries, the side lines of lots should, if possible, be at right angles to straight street lines or radial to curved street lines.

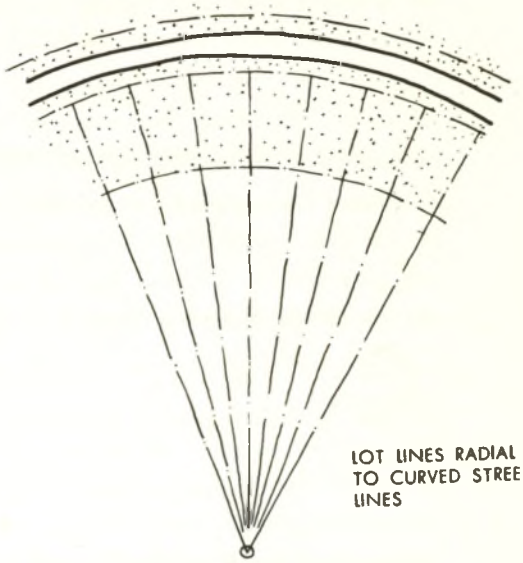


BLOCK SIZE

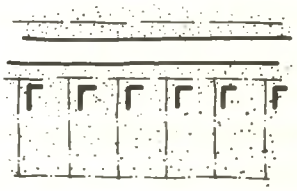


BLOCK SHAPE

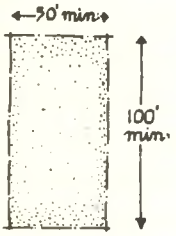
When lots are less than two deep street frontage is wasted on one side and lot shapes are impractical.



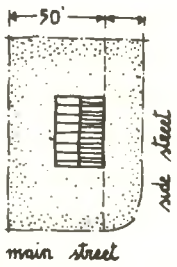
LOT LINES RADIAL TO CURVED STREET LINES



LOT LINES AT RIGHT ANGLES TO STRAIGHT STREET LINES

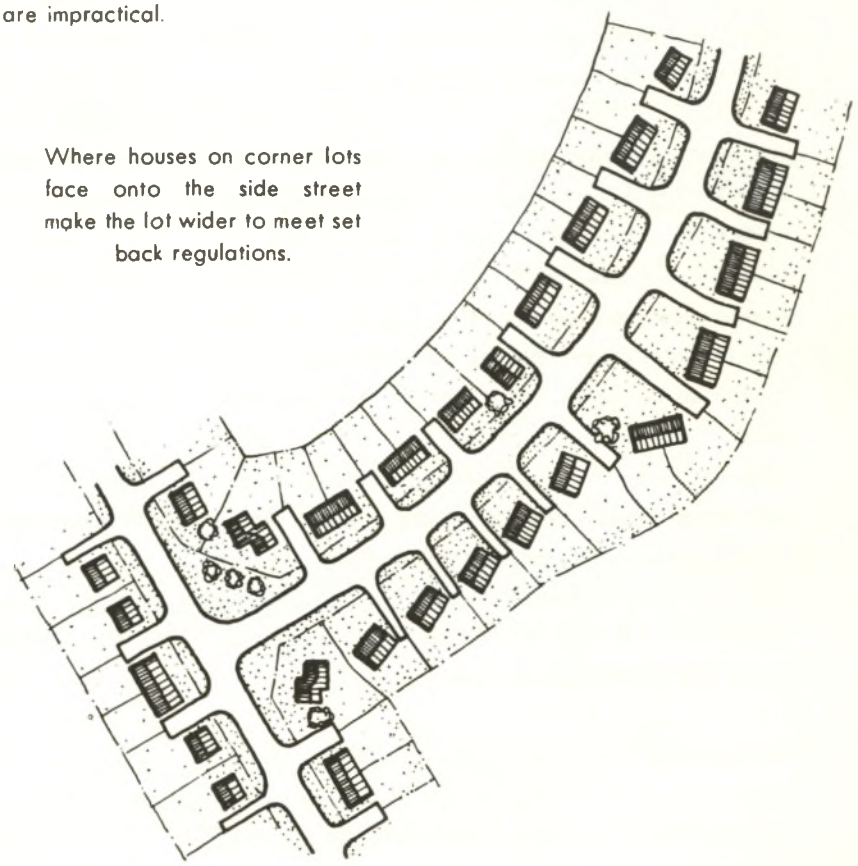


LOT SIZE



CORNER LOT

Where houses on corner lots face onto the side street make the lot wider to meet set back regulations.



The disposition of semi-detached houses among single family dwellings should be decided upon early in the planning at the stage when the land is divided up into lots and as the house groups are evolving. The fullest advantage is then taken of the land. Because of the difference between the widths of the two types of houses a piece of land can often more easily be divided into lots for one, two or even half a dozen semi-detached houses than it can into lots for single family dwellings. The sketch on the right shows how lots of semi-detached houses can be intermingled with single family houses and how the two can be used best to emphasize the individual groups.

The raw land which forms the site for building houses should be converted to its new use in accordance with a design which uses natural topography to the best advantage. The levels of streets and buildings must be established so that the surface of the land may be shaped and stabilized to provide for the run-off of rain and melting snow. The permanent features such as driveways, retaining walls, trees and hedges are part of the landscape design.

DRAINAGE

The principal objective in shaping the ground is to provide satisfactory surface drainage, so that water will flow away from buildings and be carried off by storm sewers or ditches. Those areas which are not covered by buildings or paving must be provided with a permanent surface of grass or other material which will not be eroded by water and wind. For this reason there are great advantages in locating houses and streets in such a way that the existing topsoil and trees are disturbed as little as possible. The replacement of this permanent ground cover is in itself an expensive landscape operation.

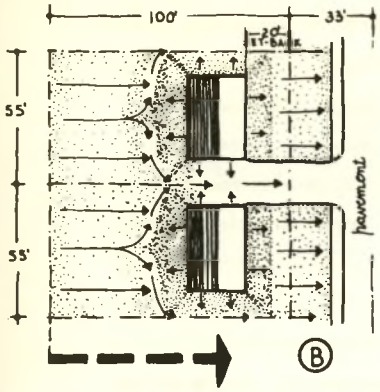
The most desirable topographical condition exists when the highest land forms a ridge along the rear lot lines of a block with a gentle slope towards the street on each side. Water will then flow towards the streets. Protective slopes are required to drain surface water away from the walls of buildings and from backfilled areas. To maintain the flow of surface water between buildings and to prevent pools collecting in the rear of buildings, drainage swales are needed; these are formed by a slight dishing of the ground to provide natural channels. The first drawing opposite illustrates such a grading plan by which water is moved from the rear yard and finally to the street for disposal.

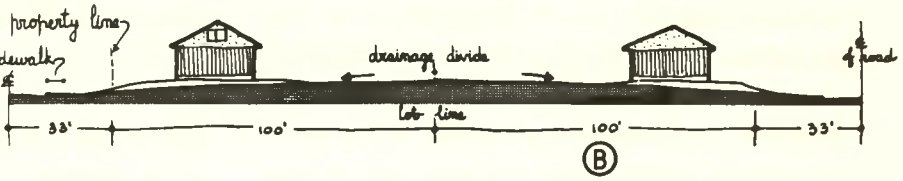
For relatively flat land, as in Grading Layout 2, the surface water from the back garden areas of lots can be drained to a rear swale, possibly designed as an easement, along the rear lot lines. In such an instance, the drainage divide occurs along the back edge of the landscaping plinth or protective slopes around the dwellings. The balance of the lot, including the front garden is drained out to the street.

The slope across a block of houses may be such that lots on one side are higher than those on the other. In this instance,— Grading Layout 3 — the drainage divide may occur along the front property line of the higher level lots, with all drainage behind this line being directed between the dwellings and across the rear gardens. Intercepting drainage swales or easements must be provided along the rear lot lines or at intermediate locations along it leading out to the lower level street. Such drainage easements must be permanently established by proper legal methods with continuous maintenance assured. Lots on the lower side of the block should be drained out to the street.

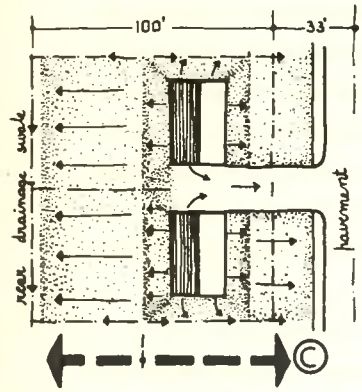
Another very common situation is where there is a cross slope; where the slope runs diagonally across a block, and hence diagonally across each individual lot, either from back to front or front to back. Grading Layout 4 shows such a situation. Drainage of these lots is more complicated, and special attention is needed to ensure that the width of individual lots is adequate to allow for the protective slopes either side of the dwelling, for the ground to fall away following the line of the slope and for side swales. Small retaining walls or steep banks may be necessary along side lot lines, and these should be carefully carried out so that the stepping up of the slope as seen from the lower end of the street does not have a jerky and disorganized appearance.

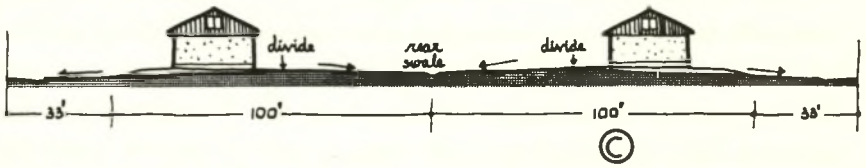
The most important factor in lot grading and drainage is the relationship of house floor elevation to street elevation. If the floor elevation is too low in relation to adjoining street grades, adequate protective slopes and drainage swales cannot be provided to drain the lot satisfactorily. If the floor elevation is too high, unnecessary terracing and outside stairs will be required and the house will appear to be dissociated from the natural lie of the land.



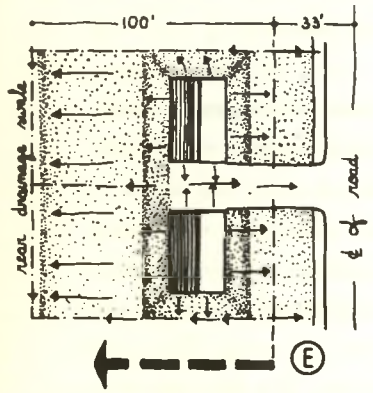


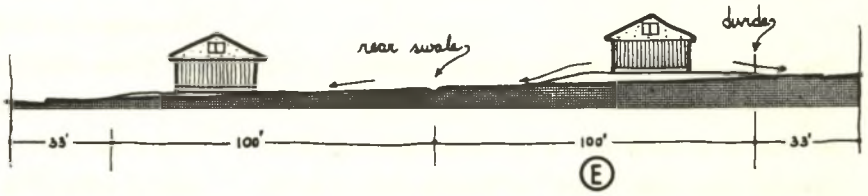
GRADING LAYOUT 1— Drainage to the street from the rear of the lot



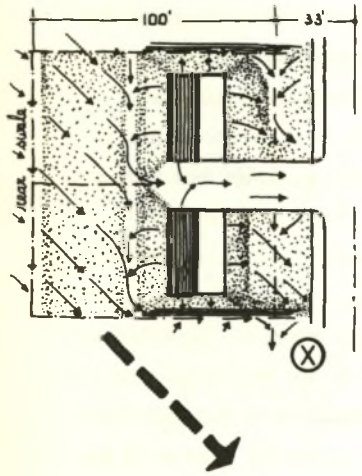


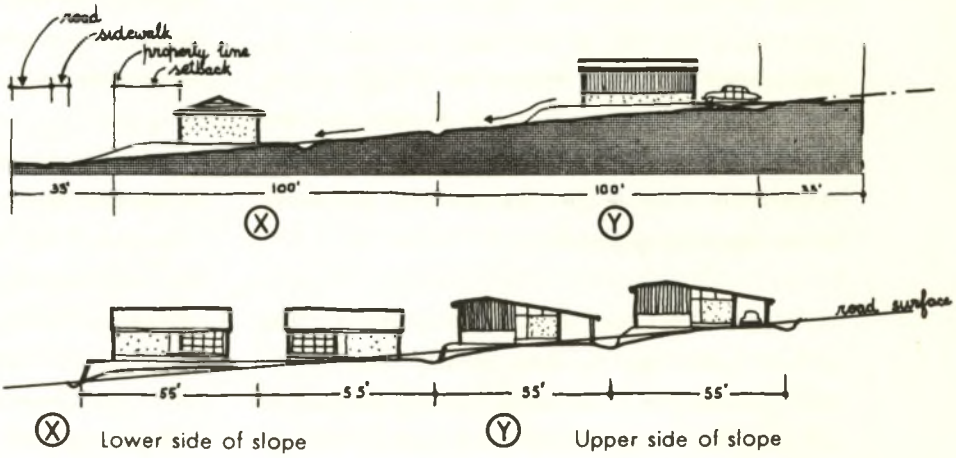
GRADING LAYOUT 2— Drainage to the street and to a rear swale





GRADING LAYOUT 3— Draining a lot which is highest on the street side





GRADING LAYOUT 4— Draining a lot with a cross slope

FLAT LANDSCAPE

The site which is flat or almost level is comparatively easy to develop. The grouping picture is governed by the street pattern rather than the topography. The landscaping should be used to assist in developing the street scene. Trees and hedges may be used to help identify spaces that are formed by the buildings. Visual barriers, such as front gardens and shrubs, which tend to confuse rather than define areas should be avoided.

If the building site is well treed, certain trees should be selected for retention before building operations commence. Careful consideration should be given to the locations and the future shapes and sizes of these trees. Trees that seed profusely should be avoided. Coniferous trees can sometimes be retained as windbreaks. In absolutely flat areas it may be desirable to employ tall trees as a relief and contrast to a row of low bungalows.

SLOPING LANDSCAPE

There are two situations that occur when building sites are on steeply sloping terrain. Both require different landscape treatments. One situation is a result of streets running at right angles to the contour lines, the other of streets running parallel to the contour lines.

STREETS RUNNING AT RIGHT ANGLES TO CONTOURS

When streets are at right angles to contour lines it is necessary to resolve the conflict in appearance between the slope of the land and the horizontal lines of the building elevations. The houses should be sited in such a way that an even rhythm is obtained by the stepped roofs. One way of achieving this is to have roofs of the same pitch. The lots in this case may have to be terraced. If the slope is very steep, set the houses endwise to the road. This will create a pleasant grouping, well related to the landscape, while eliminating much of the cutting and terracing required if the houses were placed lengthwise down the slope. When lots are terraced care must be taken to ensure drainage of surface water away from the side yards.

STREETS RUNNING PARALLEL TO CONTOURS

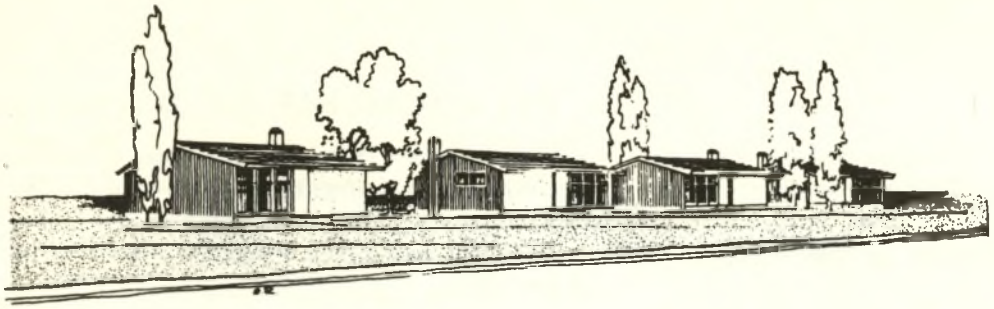
If the road runs parallel to the contours it is possible the slope may be such that the houses on one side of the street are on lots well above the established grade level while those on the opposite side are on lots lower than the established grade. It is important that all lots have finished grades that are determined from the established grade for the crown of the road which is set by the city engineer's office.

The lower lots present the greatest problems as it may be impossible in some cases to effect connections to the main sewer. Extra fill may be necessary to raise the houses to a suitable elevation.

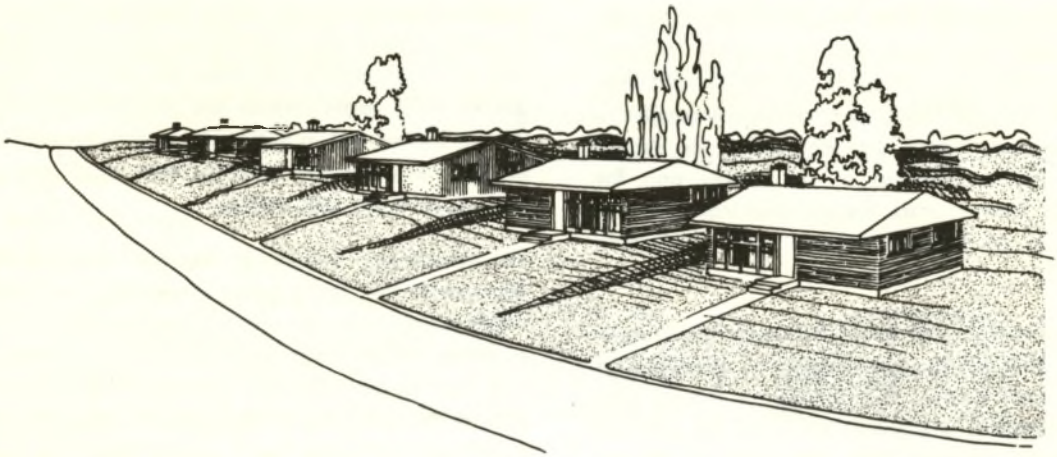
The houses on the higher side of the street need careful treatment in order to make them fit into the surrounding landscape. If the lot elevations are well above the street, the houses should be set as far back as possible so that flat areas can be developed in front of the houses, thereby reducing their apparent height.

A gentle ascending slope is preferably to steps as an approach to a house that is higher than the street. A path not exceeding a 10 per cent slope is satisfactory. When steps are necessary the banks should parallel the stairway and should not be so steep that turfing is impracticable.

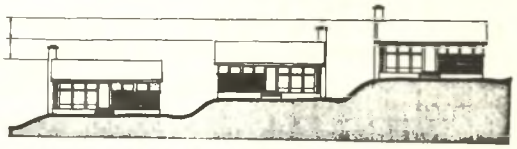
If there are good views from the site, houses should be placed to take advantage of them. This involves a study of each lot to determine a satisfactory placing of the house in relation to the slope of the land, the neighbouring houses and to any houses, trees or other obstacles that may come between the lot and the view.

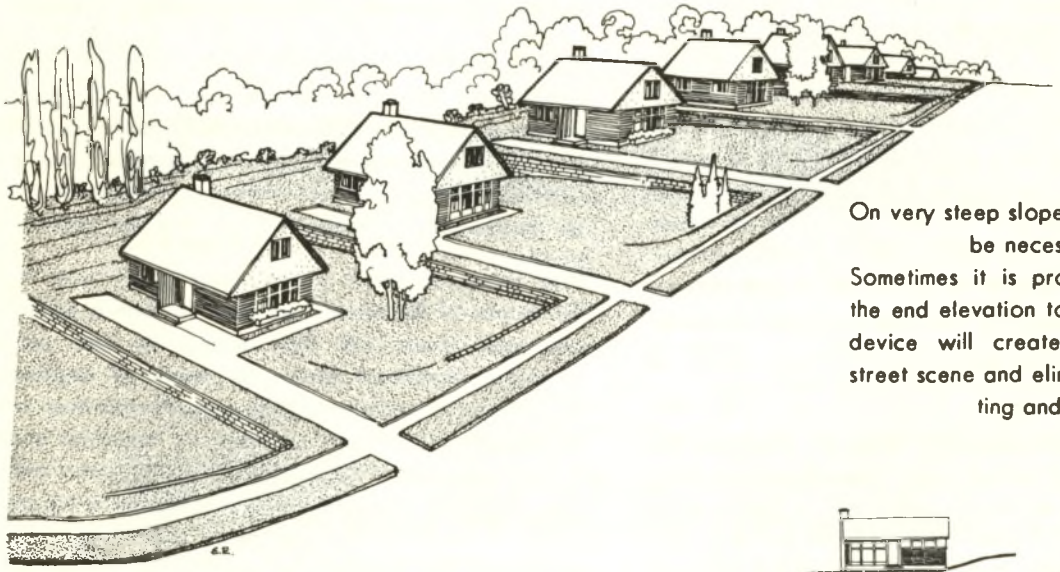


Tall trees provide visual relief and contrast, particularly on a flat landscape, for groups of low bungalows.



Houses on roads which cross contour lines at right angles should be chosen with similar pitched roofs and sited so that these roofs create an even-stepped rhythm, either up or down the hill.





On very steep slopes, terracing may be necessary.

Sometimes it is profitable to face the end elevation to the street. This device will create an interesting street scene and eliminate much cutting and filling.

RELATIONSHIP OF DWELLINGS

On a residential street each individual house is not seen separately. The view includes a group or eyeful of houses. It is this whole eyeful rather than the design of each individual house with which we are here concerned.

The shapes of houses are solid and boxlike. The meeting edges of their various surfaces form vertical lines (at the corners of walls), horizontal lines (at the ground line, the eaves and the roof ridge) and sloping lines (at the roof gables and where there are hipped roofs). Vertical lines tend to raise the apparent height, horizontal lines give a feeling of repose, and sloping lines tend to link the shapes to the ground. The proportions of the boxes and the directions of their lines provide the architectural basis for blending a group of houses together into a pleasing composition.

There has been a widespread belief that each house ought to stand out as different from its neighbour, even though the houses are really similar. This striving for individuality and personal prestige of the owner has been the greatest enemy of residential design. Only ugliness and discord result from disguising similar houses with sham materials and decorative features. There is no need to conceal the true nature of a house structure if good materials are used. Consistency and continuity in the use of materials, colours and details throughout a housing group enhances its architectural unity; frequent variation of building materials disrupts it. Thus the use of materials in any one house must always be considered in relation with the materials used in all the other houses in the group — houses must have a sense of neighbourliness.

The architectural composition and general effect of a housing group may be enriched by the judicious use of colour. Through colour and texture the surfaces of houses obtain life and vitality. It is essential that a colour scheme be divised for a group as a whole. Avoid the use of bright primary colours; they look cheap, and although when used in small areas they can give points of interest in the visual picture, if used in any quantity they lead to a restless jumble of colours. It is also well to remember that dark colours make areas look smaller, light colours larger; warm tones advance, cool ones recede, and small areas of bright or intense colour balance large areas of subdued colour.

Houses have two large dominant areas, the roof and the walls. Their colours should be carefully related. In fact, a good colour scheme relates roof, walls, gable ends, garage, as well as such accent areas as doors and chimneys. A house generally looks more satisfactory when the roof is a neutral colour. Dark greys give more definition to the silhouette and a feeling of repose and solidarity. Very light tones, although they deflect the heat, detract emphasis from the roof mass so that attention is directed to the walls of the building.

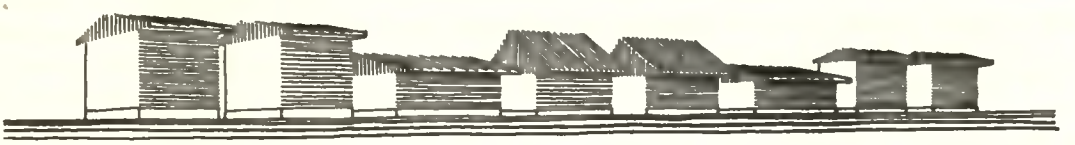
As a general rule the wall surface of the small house is not large enough to sustain more than one change in colour, or more than a very limited variety of textures; usually sash and trim look better when painted in a single colour; details which might confuse the form of the building should not be picked out in colour; in fact, where it is desirable to play down certain features they should be painted in hues close to the wall shade.

The human eye delights in recognizing a repeated form. Because of this, the greater the similarity of house shapes within a group, the greater will be the unity of the group as a whole. While each house should have some inviduality it should not be sufficiently different from its neighbours to disturb the harmony of the whole group. It is here that standardization can be of great help. The repetition of such details as windows and doors, and the consistent use of similar eaves, gable ends, fascia and other architectural features throughout will contribute to the harmony of the whole. This is because the eye is not interrupted by monotonously laboured tricks, but is carried along in a rhythm of repeating elements of doors, windows and roof lines.

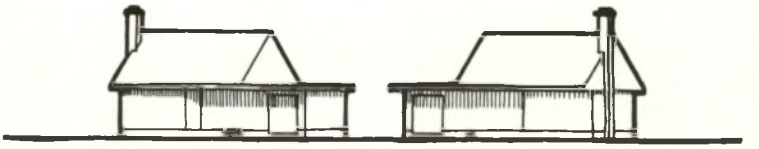
Cohesion may also be obtained in the design of a housing group through similarity in the character of the buildings involved, although their forms may differ. This character may be due to the personal imprint resulting when one architect designs all the houses comprising a group.

To sum up then, consistency in the form of houses, the architectural treatment, the materials and the colour will contribute a great deal towards successful grouping. It should be remembered, however, that houses are not the only elements in a group; there are the spaces between the houses, the landscape features and the street itself.

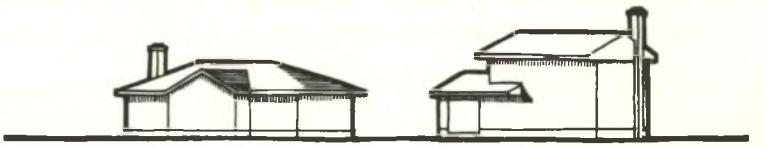
Each group of houses should differ in the way in which the shapes of the houses are used to form a composition, and each group will then acquire its own particular character. Significant places for points of emphasis can be carefully chosen amongst the groups rather than amongst individual houses where such emphasis would be lost. Here is where a sense of civic design begins to come into play, and whilst this particular aspect of design is beyond the scope of this book it should never be lost sight of when considering the principles of small house grouping.

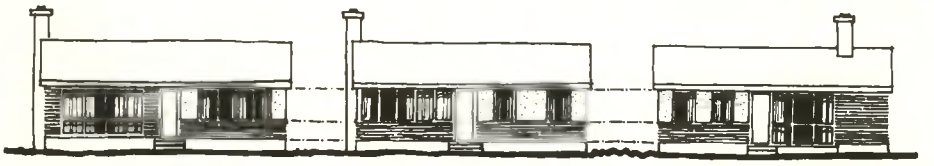


Because houses have mass, and are seen from a variety of angles, the designer, when grouping them together, is influenced by their shapes and the directions of their lines.

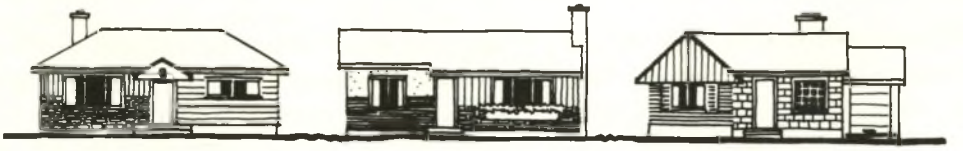


The greater the similarity of form, the greater will be the cohesion between adjacent buildings.





ORDER



DISORDER

4 *the street picture*

Designing a group of houses involves not only the houses themselves but also the spaces between the houses, the trees and other landscape features, as well as the design of the street, drives and walks.

The silhouette of houses seen against the sky is the most striking feature of a new housing project. This profile is monotonous if the houses and the spaces between them are identical. It is shapeless and confused if all the house are different. An uninteresting skyline is most noticeable and harsh when houses are seen against the sky as their only background. Groups of trees provide a backdrop which gives some softness and depth to the outlines of houses. Since trees grow to be higher than the houses themselves, their shape, foliage and branch-work form an important part of a housing development.

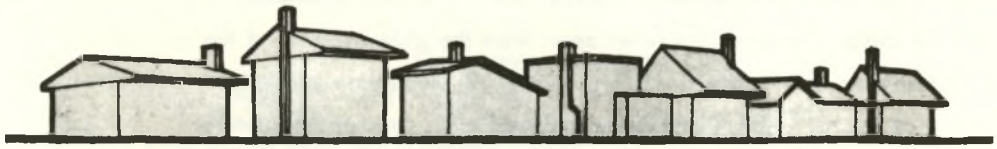
The appearance of a row of houses depends to a great extent on the spaces between them. Similar houses with similar spaces between them give the impression of being grouped together. A wider intervening space will break and relieve the rhythm of houses and spaces and can be used to separate one group from another. A group of houses can sometimes be linked together by screen walls, covered terraces or garages which give continuity to the facade and reduce the jerky appearance of houses and spaces.

In comparison with the size of a small house, garages are large buildings and therefore form an important part of any housing group. When attached to a house a garage can have the effect of enlarging its size, extending its horizontal lines and giving it a more interesting shape. It is sometimes useful in linking together houses of different types.

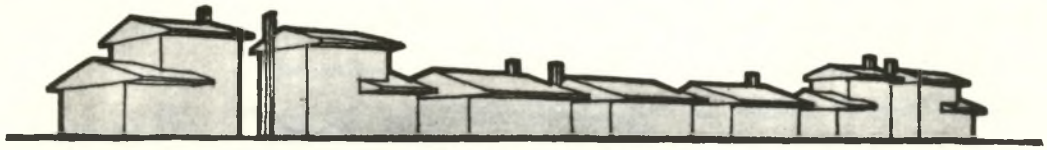
A carport, where this form of shelter is acceptable, can be made into an interesting design feature because it provides a strong low horizontal line in place of the rather heavy square proportions of a garage.

Where detached garages are used, it may be possible to join them in pairs. This provides a building of more handsome proportions and economical construction. By placing the garage and driveway against the lot line, there is a saving of space and each lot will appear to be wider because the grass areas are not so interrupted. The objections sometimes raised to a mutual garage building must be weighed against the advantages in space and appearance.

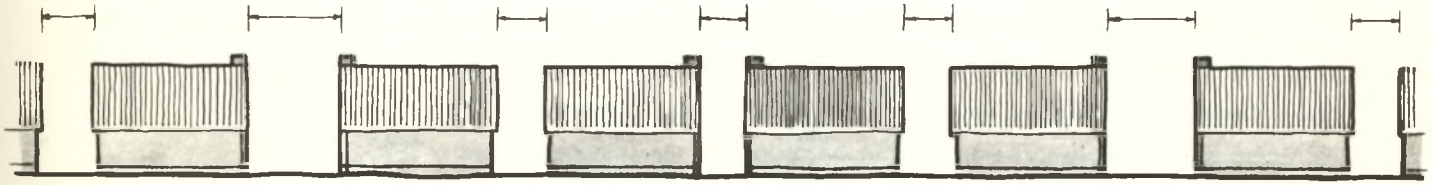
Where houses and the spaces between them are identical the silhouette is monotonous



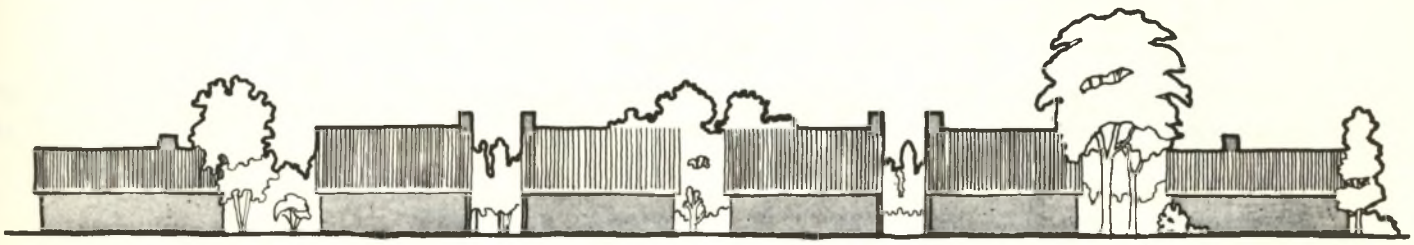
Different houses with varying spaces between them create a disorderly silhouette



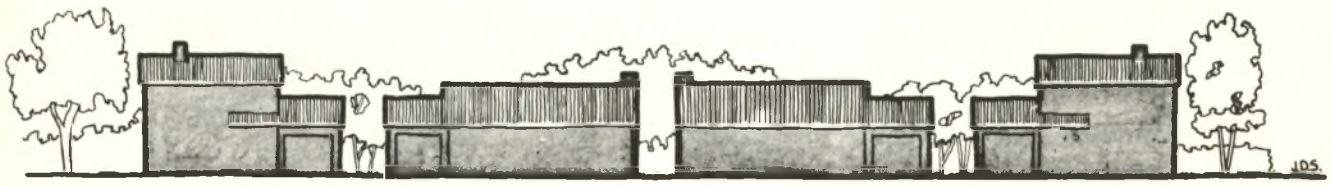
Houses that have been consciously grouped present an interesting and orderly skyline



Judicious arrangement of space between similar houses can separate one group from another



Trees as a backdrop provide a softness and a depth to the outline of houses



Garages are useful as a means of linking together different types of houses within a group

One of the aims of house grouping is to create a sense of enclosure. In the same sense that an individual house provides privacy for a single family by the enclosure of its walls, so a group of houses, by being used to enclose space, can be arranged to give a sense of privacy to a group of families. There is a deeply rooted desire for this feeling of enclosure in establishing a home. There is a natural satisfaction in feeling that the place where you live is set apart from the wide expanse of the city. The attachment to one's own street and group of immediate neighbours provides a sense of security within the large and overpowering scale of the modern city.

The common residential street on a grid-plan gives no such feeling of enclosure; the straight lines of house fronts, streets and sidewalks go to infinity. A well designed residential area should provide groups of houses within a distinctive setting. Within reasonable limits of economy and traffic circulation, the more private and separate each group of houses is, the better. The cul-de-sac or loop street provides the most complete privacy for a housing group.

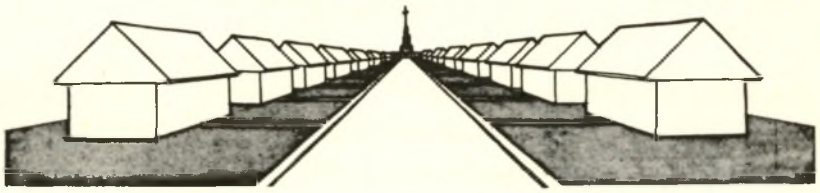
A long straight street may have a feeling of enclosure if it is terminated by a large building which closes the view. This might be a church or a school. But most residential areas are not planned with such formality and it is necessary to use the forms of houses themselves to close the view. Since houses are comparatively small in size, this enclosure is only effective where there are comparatively short lengths of streets.

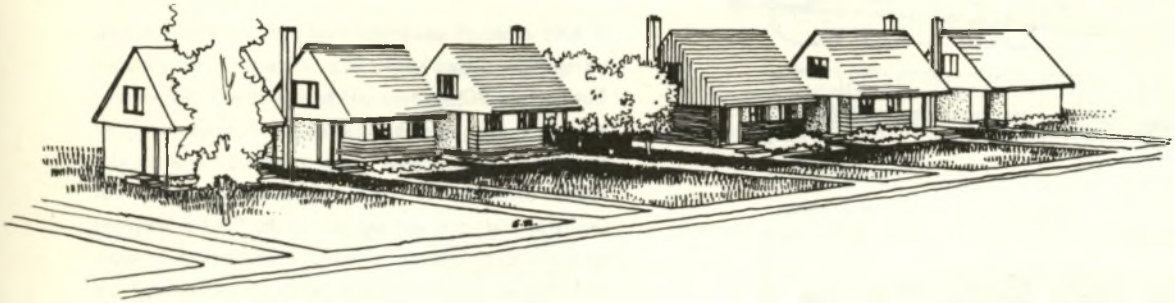
One method of limiting the view and so seeming to enclose space is through the use of a curved street. This provides a changing but continually enclosed view as one moves along the street. Though perhaps more satisfactory than a straight street, too great a length of curved street can become equally monotonous. It does not in itself satisfy the desire to reach an enclosed termination.

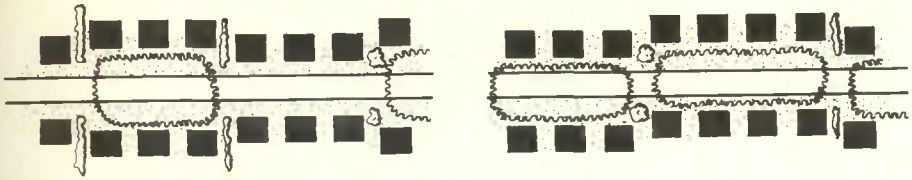
Opportunities to close views are provided at the T intersections of residential streets. There the houses, hedges and trees can be arranged symmetrically to form a recongizable group.

Unfortunately the plans of residential areas are frequently made without thought for house grouping and it is necessary to try to overcome the monotony of long straight streets. This may be done to some extent by setting back a few houses and closing the group with the sides of adjoining houses. The effect can be magnified by placing trees, hedges and fences, and by strengthening the appearance of the enclosing houses.

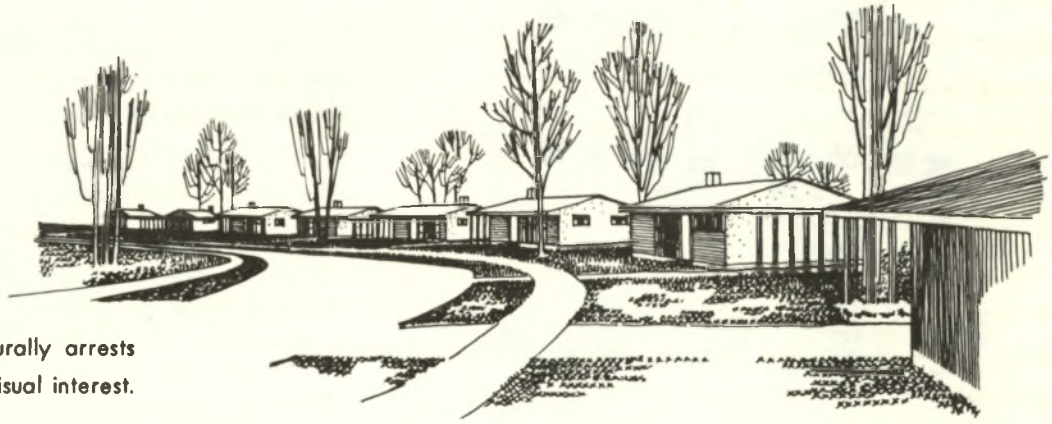
One of the first requirements when designing the spaces of straight streets is to stop the view at the end where the eye might otherwise be led on to infinity. This can be done by placing a large building mass at the end of the street.



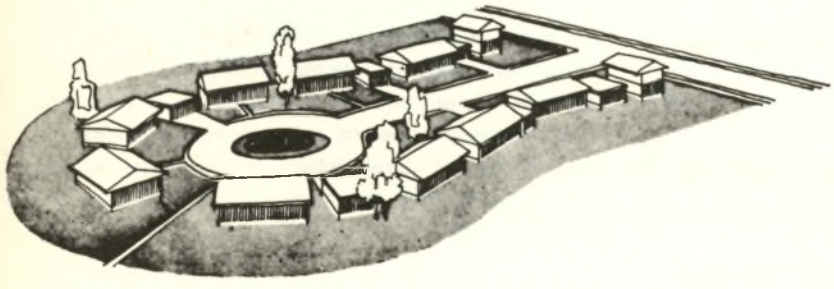




Setbacks can be used to define spaces, to partially arrest the view down the street and to relate the houses on either side to each other and to the street.

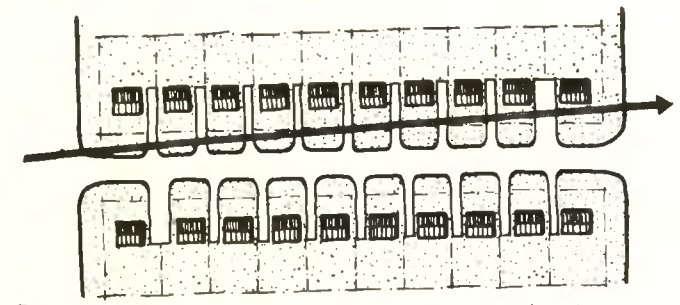


The curved street naturally arrests the view and creates visual interest.

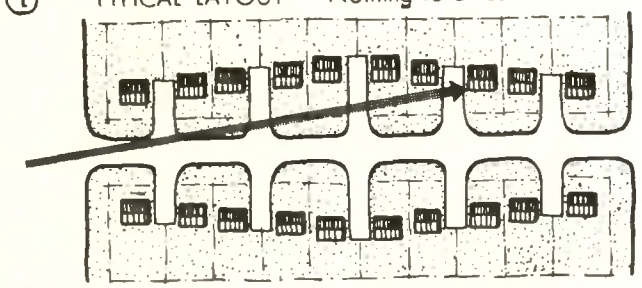


Culs-de-sac and loops are ideal for house grouping purposes because these street patterns naturally create enclosed space whose definition gives visual pleasure.

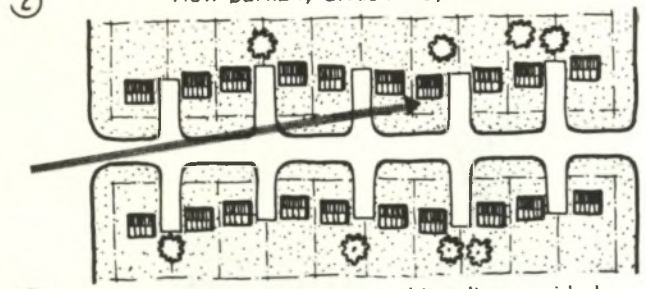
grouping on the continuous street



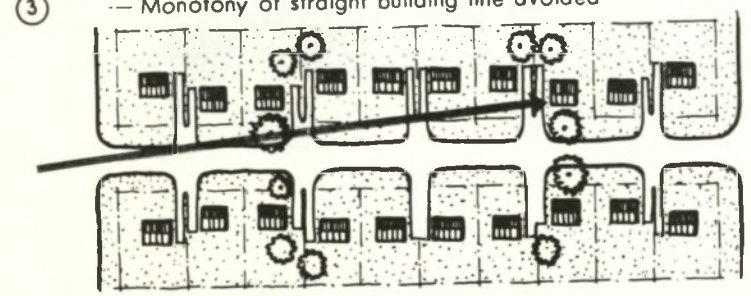
① TYPICAL LAYOUT — Nothing to arrest the view



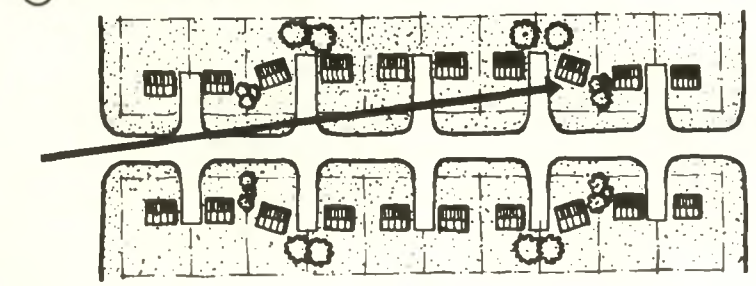
② — View partially arrested by set-backs



③ — Monotony of straight building line avoided



④ MPROVED LAYOUT — Houses grouped and view arrested



⑤ IMPROVED LAYOUT — Houses grouped and view arrested

STRAIGHT STREET

The monotony of a straight street may be relieved in several ways — through variety in the house designs, by breaking the straight alignment of houses, by varying the widths of lots and by landscape treatment.

If lots are of uniform minimum width there is very little opportunity for freedom of design. But on lots 50 feet or 60 feet wide it is possible to vary the spaces between houses and so separate one group from another. This is still more effective if the widths of lots are not uniform but are set out so as to fit the designs of individual houses, pairs of houses and groups. In other words the subdivision of land may be regarded as part of the design of house groups.

A street which has a uniform straight alignment of houses is like a continuous corridor without any conclusion to the view. This continuity can be relieved by opening out street spaces, with groups of houses set back behind the general alignment. These spaces provide a sense of enclosure and arrest the view. Street spaces can be achieved either by gradually steeping back the frontages of adjoining houses or by more symmetrical arrangements of a row of similar houses with flanking houses of similar design.

The monotony of a straight street can also be relieved by a curved alignment of houses.

Whatever method is used it is necessary to consider the placing of each type of house so that their shape and design will be effective in relationship with one another. For instance, a row of similar bungalows may be enclosed by contrasting groups of two-storey houses on either side. In this way the similarities and the differences of each house design may be used to good effect.

A grid layout of streets is the most difficult setting in which to design house groups, because the streets themselves do not provide a pattern of enclosed spaces and views. The definition of groups depends almost entirely on architectural design and on landscape treatment. It is relatively easier to group houses on loops and cul-de-sac streets where the enclosure of space arises from the form of the land subdivision itself.

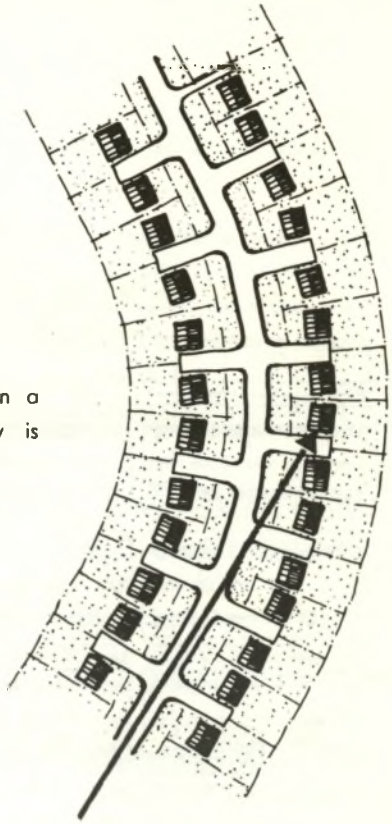
CURVED STREET

The curved street presents a lesser problem. The monotony of long rows of houses is eliminated as the curving street offers an ever-changing view which is constantly arrested. However, the same problems of mass relationships, street spaces and landscaping exist with this type of street and must be solved before a satisfactory grouping is achieved.

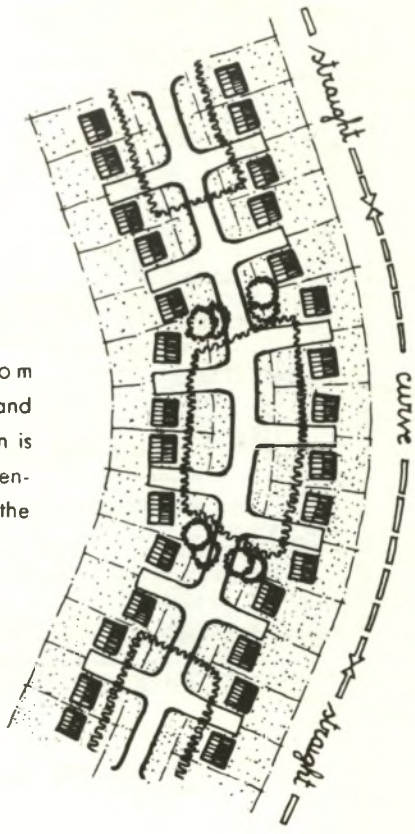
There are several methods of house placement that will provide interesting street pictures. The simplest arrangement is to have all houses equally set back and placed to follow the curve of the street. This arrangement relies on a careful selection of house types and materials, a studied relationship of side yard areas and the proper use of landscaping to create interest and to give definition to the various groups down the street.

In the second arrangement all houses, except a group of six at the outside of the turn, are grouped in straight line assemblies around the curve. The six houses at the turn are set back various distances to create an open space. The straight line arrangement of the houses at the inside of the turn adds to this open space which becomes the focal point of the design.

There are many possibilities for grouping arrangements of this nature. The important things to remember are that houses of similar shapes should be grouped together, the groups should be arranged to form street spaces and the street spaces should be enhanced by the landscape design to form interesting street pictures.

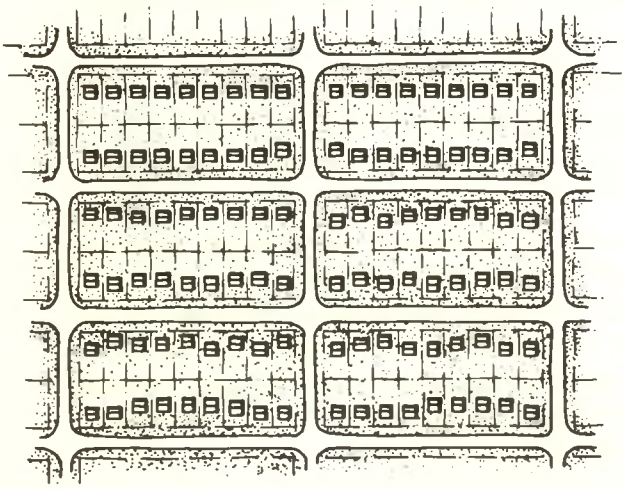


A typical arrangement on a curved street. The view is naturally arrested.



Here the transition from straight street to curved and back again to a straight run is recognized and even accentuated by the set-back of the houses on the curve.

streets designed as major grouping elements



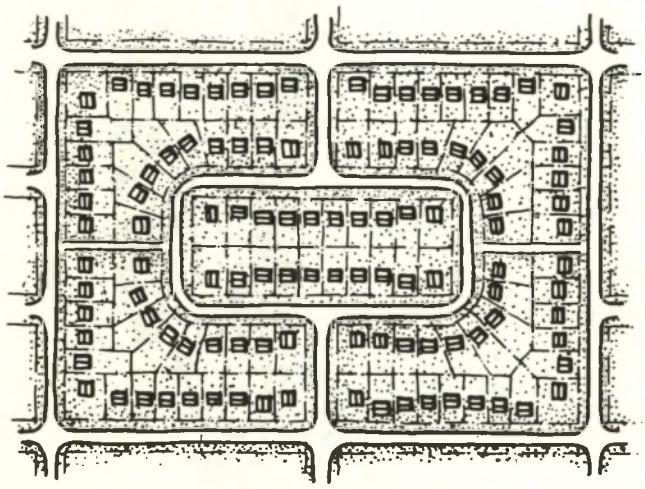
TYPICAL GRID PATTERN

MODIFIED GRIDS

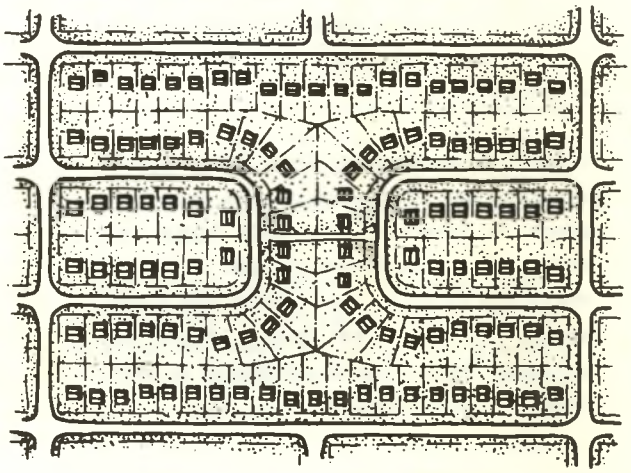
It is possible to avoid the monotony of the grid system by modifying the street pattern. A few simple street alterations can provide interesting grouping possibilities that not only eliminate the tediousness of the straight street but even provide opportunities for green areas within the groups.

The first arrangement has a central loop which not only creates interesting grouping possibilities but also relieves the traffic load by setting up a resistance to through traffic. The problem of grouping is much less critical as there are no long unarrested views. If the centre section of the loop is retained as a green area, the grouping of surrounding houses should be governed by the fact that the park is the main focal feature. Every house should be sited to take advantage of the pleasant open space. The lot planting and house layout should stress the visual enclosure of the green.

The second arrangement suggests another design for the same six-block area. In this case, instead of a centre loop, two outside loops have been formed. The grouping problem is very similar to that found in the first arrangement.



MODIFIED GRID 1



MODIFIED GRID 2

CUL-DE-SAC

With this type of street the grouping of houses presents a far less difficult problem than that of the straight street. The shape of the cul-de-sac is such that the fronting houses automatically create an enclosed space.

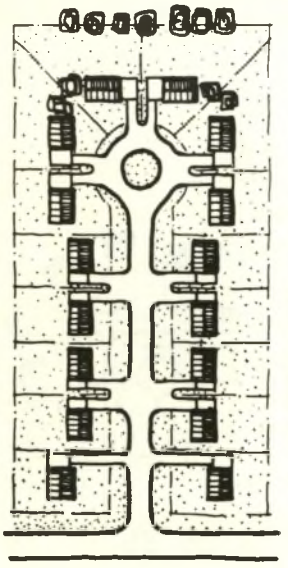
A cul-de-sac that is longer than 500 feet may be too long to be effective for grouping purposes. It loses its compact shape and may have to be designed as a straight street with a distinct grouping of houses at the turn-around. The compactness of the shorter cul-de-sac usually permits a unified grouping of all the houses.

The more effective the enclosure of space at the circle, the more successful will be the house grouping. Some plans may look well on paper, but in actuality may neither express the street shape nor enclose the space at the turn-around. This enclosure of space can be achieved by linking houses with screen walls, or by carefully locating trees and hedges so that the space is defined.

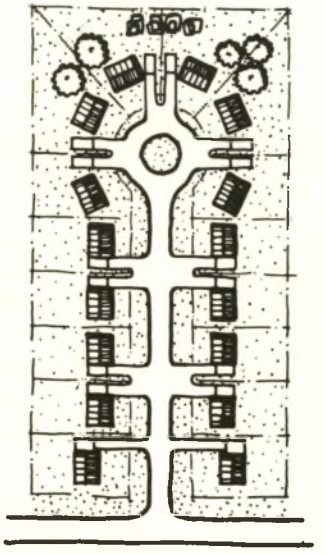
In Grouping 1 below, two groups have been used, one down the leg of the cul-de-sac, and the other at the turning circle. The latter does not echo the street pattern; the houses are grouped to enclose a square terminating space.

In Grouping 2 all the houses are illustrated as a single group. Their unbroken building line encloses a large symmetrical space which becomes the focal point of the group.

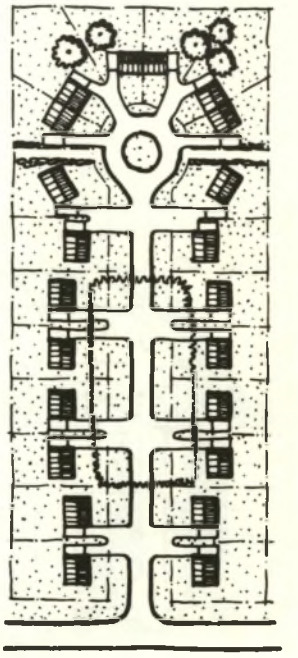
Grouping 3 illustrates a recommended maximum length cul-de-sac and the houses are treated as two groups. The space down the leg of the cul-de-sac has been emphasized by a definite set-back, and to give the second group at the turning circle more definition semi-detached houses have been used to surround the space.



GROUPING 1



GROUPING 2



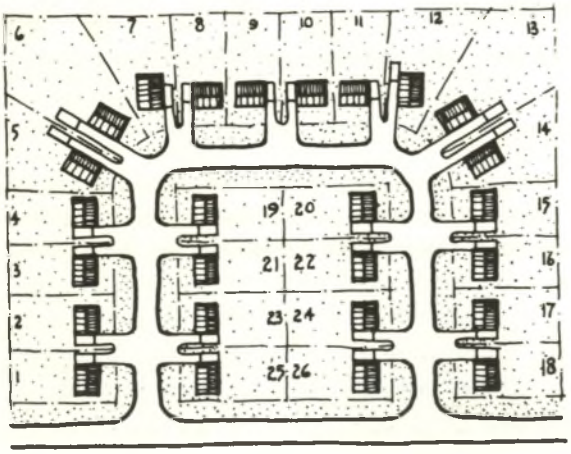
GROUPING 3

LOOPS

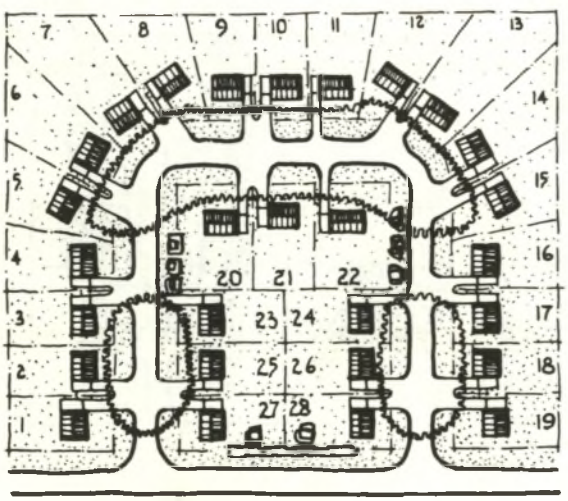
Good opportunities exist for varied and interesting house groups on lots flanking looped streets. However, the typical loop arrangement illustrated at left lacks design both in lot arrangement and house location. The narrow width at the building line of lots 5, 6, 7, 12, 13 and 14 is caused by the alignment of these lots on the radii of the looping road. The view from lots 8, 9, 10 and 11 is of backyard areas. The arrangement of houses is unsatisfactory since there is nothing to attract or arrest attention.

In Loop Layout 2 lots 5, 6, 7, 8, 12, 13, 14 and 15 have been enlarged. The interior arrangement of lots has been changed so that lots 20, 21 and 22 face the end of the loop. This improves the outlook for all the houses at the head of the loop. A particularly pleasing feature is the openness which has been achieved by the recession of houses on lots 5 - 8 and 12 - 15. From either direction of the loop there are satisfactory focal points which can be further improved by skilful planting and landscaping.

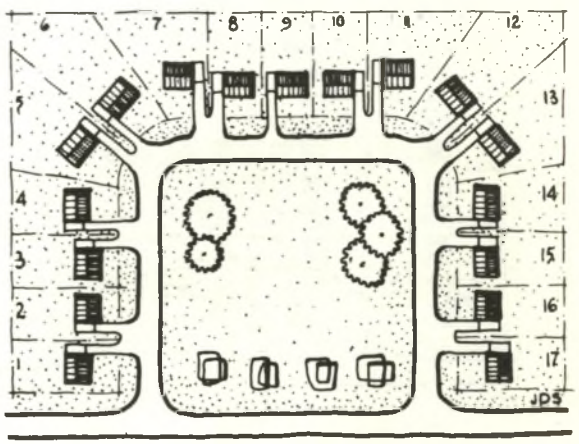
The feature of the third layout is the central green which provides all the houses with a pleasant outlook. If a uniform set-back is adhered to for all the houses surrounding the green it will give strong definition to the space enclosed. Alternatively, the houses on the corner lots can be set back to give some variety to the whole group. All the houses surrounding the green should be related in such a way that they present a unified grouping with the green as the focal point. Houses 1 and 17 act as the terminating elements.



TYPICAL LOOP



LAYOUT 1



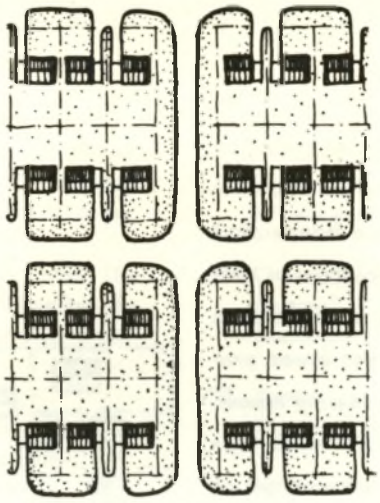
LAYOUT 2

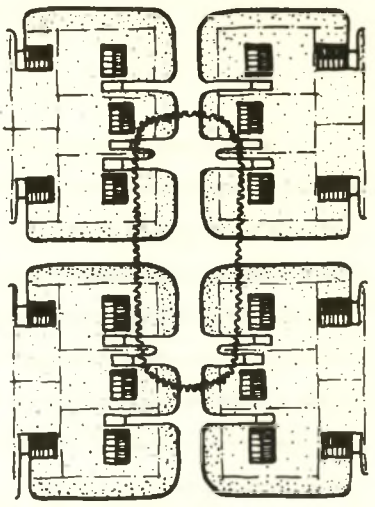
street intersections

CROSS INTERSECTIONS

The normal lot divisions at typical cross intersections are illustrated here. The layout results in an open block end with a large gap separating the two houses on it. The architectural composition at the intersection is limited to the four houses on the corners.

In the improved layout the block end is subdivided into lots which are at right angles to the general subdivision and perpendicular to the cross street. This brings eight houses into the architectural composition. It also eliminates the backyard view which is so prominent in the typical layout.



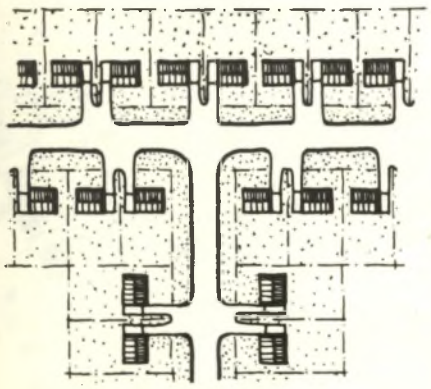


T INTERSECTION

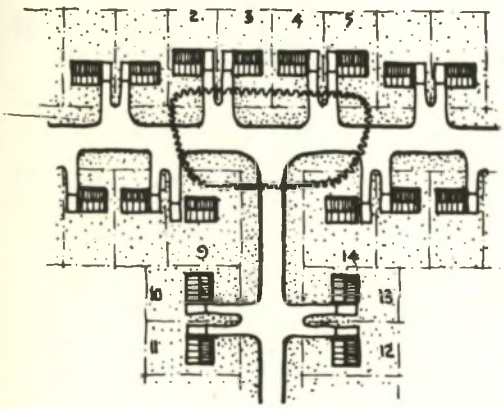
In the typical T intersection at the left, grouping opportunities have been missed despite the fact that this form of intersection lends itself to interesting architectural grouping.

In the second layout houses on lots 2, 3, 4 and 5 are situated to form a small green space at the intersection of the T. This space provides an interesting focal arrangement as a vista down the leg of the T. The space is visually enclosed by these four houses and by the houses on lots 9 and 14.

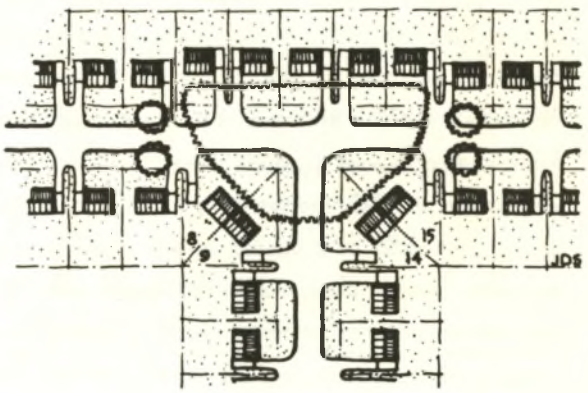
The third arrangement of houses is a result of the replanning of lots 8, 9, 14 and 15. Instead of these four lots all facing the major street, triangular lots have been formed in such a way that two face the major street and two the minor street. Although this arrangement produces four irregular lots, it partially eliminates the problem of the backyard view noticeable in scheme 2, and it also avoids the difficulties that result when corner lots front on two streets. A larger and more interesting street space is formed by the eight enclosing houses and traffic visibility at the corner is improved.



TYPICAL T INTERSECTION



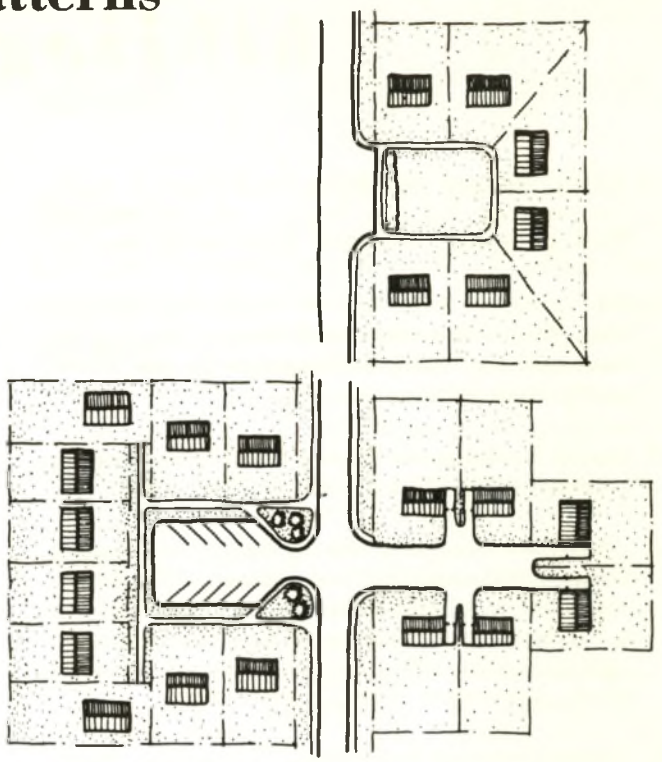
T LAYOUT 1



T LAYOUT 2

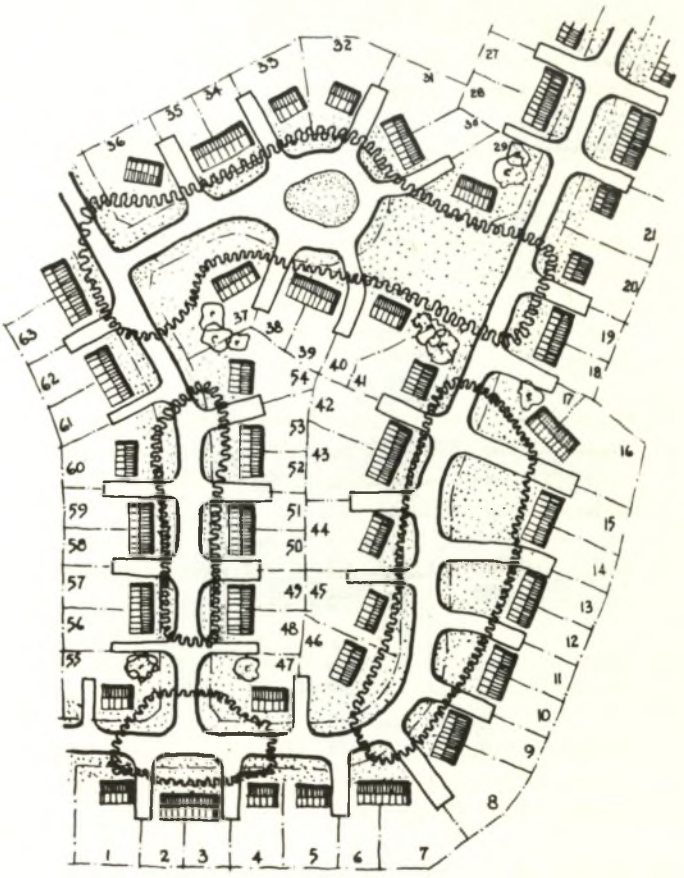
miscellaneous street patterns

In developments where building codes permit or where no established street pattern exists, it is possible to plan small groups of houses which are independent of a street pattern. These groups usually have as their nucleus car parking areas. These may be in the form of bays which, when extended into green areas, provide attractive focal parks for the bordering houses. Or they may be in the form of motor courts which form a cul-de-sac-type street onto which houses front. A third group of this type may be planned around a modified cul-de-sac which is only long enough to provide access to six lots. These are only a few arrangements that are possible in areas where circumstances permit a certain freedom of design in street layout.



single and semi-detached house groupings

Within house groups it is sometimes desirable to mix semi-detached houses with single houses. This often results in better use of the available land, and provides an opportunity for a wider selection of types of accommodation, for creating interesting groups, and a chance to secure better driveway locations, particularly at corners. Where it is desired to give emphasis and provide variety at certain points in the layout it is useful ta depart from the practice of siting the houses on setbacks parallel to the line of the road. Special care should be taken to screen the backs and backyards of houses from the street by skilful siting and screen planting. The sketch on the right embodies various principles of grouping, and the treatment of various situations. These include a T junction, a cul-de-sac, the creation of an open space, grouping on a straight street, and on a curved street, and the handling of the transition from one to another.



bibliography

1. Adams, Thomas, *The Design of Residential Areas,* Harvard City Planning Studies, vol. VI, Harvard University Press, Cambridge, Mass., 1934, 296 pp.

2. The American Public Health Association and The Committee on the Hygiene of Housing, *Planning the Neighbourhood,* Public Administration Service, Chicago, Ill., 1948, 89 pp.

3. Central Mortgage and Housing Corporation, *Choosing a House Design,* Ottawa, Canada, 1956, 48 pp.

4. Central Mortgage and Housing Corporation, *Housing Design,* Parts I and II, Ottawa, Canada, 1953, 80 pp. Published as a supplement to the *Journal* of the Royal Architectural Institute of Canada, September 1952 and May 1953, and the *Community Planning Review,* September 1952 and May 1953.

5. Central Mortgage and Housing Corporation, *Typical Block and Lot Grading for Single Unit Projects,* Ottawa, Canada 1955, 10 pp.

6. Crossley, Alan, series of articles in *Canadian Builder,* March, June, September and November, 1954, and March and September, 1955.

7. Gibberd, Frederick, "Three Dimensional Aspects of Housing Layout", *The Journal of the Royal Institute of British Architects,* August 1948.

8. Gibberd, Frederick, *Town Design,* The Architectural Press, London, 1953, 300 pp.

9. Housing and Home Finance Agency, *Low Rent Public Housing, Planning, Design and Construction for Economy,* Public Housing Administration, Office of the Administrator, Washington, D.C., December 1950, 94 pp.

10. Housing and Home Finance Agency, *Reading List on Housing in the United States,* Public Housing Administration, Office of the Administrator, Washington, D.C., revised January 1953.

11. Klaber, E. H., *Housing Design,* Reinhold Publishing Corporation, New York, 1954, 247 pp.

12. Kostka, V. Joseph, *Planning Residential Subdivisions,* The Appraisal Institute of Canada, 1955, 127 pp.

13. Ministry of Housing and Local Government, *The Density of Residential Areas,* H.M. Stationery Office, London, 1952, 72 pp.

14. Ministry of Housing and Local Government, *Houses 1953,* Third Supplement to the Housing Manual 1949, H.M. Stationery Office, London, 1953, 64 pp.

15. National Association of Home Builders of the United States, *Home Builder's Manual for Land Development,* Washington, D.C., 1954, 274 pp.

16. Owen, Hugh, "Design of Housing Groups and Urban Spaces", *Community Planning Review,* September and December, 1955, and March 1956, Ottawa, Canada.

17. Purdom, C. B., *The Building of Satellite Towns,* J.M. Dent and Sons, London, 1925, 368 pp.

18. Sharp, Thomas; Gibberd, Frederick; and Holford, W.G., *Design in Town and Village,* H.M. Stationery Office, London, 1953, 120 pp.

19. Small Homes Council, *Small Homes Council Circulars,* University of Illinois, Urbana, Ill.

20. Spence-Sales, Harold, *How to Subdivide for Housing Developments,* Community Planning Association of Canada, Ottawa, Canada, 1950, 36 pp.

21. Stein, Clarence, *Towards New Towns for America,* University Press of Liverpool, 1951, 245 pp. Agents in the U.S. — Public Administration Service, Chicago, Illinois.

22. United States Housing Authority (now Public Housing Administration), *Design of Low Rent Housing Projects, Planning the Site,* Washington, 1939.

23. Unwin, Raymond, *Town Planning in Practice,* T. Fisher Unwin, London, 1911, 416 pp.

24. Urban Land Institute, *The Community Builders Handbook,* Washington, D.C., 1954, 314 pp.

25. Wright, Henry, *Rehousing Urban America,* Columbia University Press, New York, 1935, 173 pp.

Various articles in the following publications:

Canada:	Journal, Royal Architectural Institute of Canada
	Community Planning Review
	Canadian Builder
	Canadian Architect
United Kingdom:	Architectural Review
	Journal of the Royal Institute of British Architects
	Town Planning Review
United States:	Architectural Forum
	House and Home
	Architectural Record
	Journal of Housing