

711.
5809944
COU

Courtyard Housing



DESIGN PRINCIPLES

711.
5809944
COU

Department of Urban Affairs and Planning

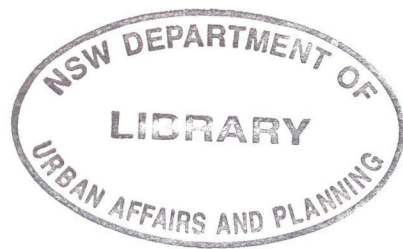
30260



711.
5809944
COU

Courtyard Housing

DESIGN PRINCIPLES



30260

Dept Planning & Environment

LIBRARY - HURSTVILLE

Department of Urban Affairs and Planning

Shelf no: 711.5809944
ID no: COU

30260



© Crown copyright 1996

Printed July 1996

ISBN 0 7310 6230 2

96/30

Photo by Photolibrary Sydney — Richard Woldendorp

DISCLAIMER

Any representation, statement, opinion or advice, expressed or implied in this publication is made in good faith but on the basis that the State of New South Wales, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement, or advice referred to above.

Foreword

Craig Knowles

Minister for Urban Affairs and Planning

and Minister for Housing

To more effectively use urban land, there is a need to design higher density housing developments — housing that meets people's changing needs and lifestyles.

The Department of Urban Affairs and Planning is concerned that the best use is made of existing urban infrastructure and that the social costs of developing new residential areas are minimised.

This publication is part of an ongoing process to promote smaller lot housing. The guidelines complement the department's document *Residential Strategies* which provides the basis for councils to develop local housing strategies.

Landcom's role is to work closely with local councils and industry, creating greater awareness of our housing challenges and demonstrating the benefits of this approach by developing appropriate models.

I commend this document to builders, home purchasers and planners as a useful contribution to good housing design.



A handwritten signature in black ink, appearing to read "Craig Knowles".

Contents

Foreword iii

List of Figures vi

INTRODUCTION	1
NEIGHBOURHOOD DESIGN	3
Courtyard locations within neighbourhoods	4
Clusters of courtyard houses	4
HOUSE DESIGN	9
House lot and house relationships	9
Car parking	13
Building on slopes	14
Orientation for solar access	15
Relationships with traditional housing	16
HOUSE PLANNING	17
Public zone	18
Bedroom zone	19
Private zone	20
House style	21
Roof form and style	22
COMMON PROBLEMS	23
House lot	23
Parking	26
Public areas	31
Private areas	35
Bedrooms	37
CONCEPTUAL DESIGNS	38
Courtyard house with 10m wide frontage	39
Courtyard house with 10m wide frontage (cont.)	40
Courtyard house with 10m wide frontage — 1 1/2 storey	41
Courtyard house with 10m wide frontage — 2 storey	42
Courtyard house with 12.5m wide frontage	43
Courtyard house with 15m wide frontage	44
GUIDELINES	45
Approval procedure	45
Requirements	46
Desired character	46
Slope of land	47
Building siting	47
Zero lot line	47
Orientation	49
Courtyards and private open spaces	49
Garage and carports	49
Access and driveways	51



Roof Form	51
Building Materials and Colour	52
Walls	52
House Colours	52
House Style	52
Outbuildings	52
Privacy	52
Landscaping	53
Fencing	53
Energy Efficiency	54
Clothes Lines and Letter Boxes	54

FURTHER INFORMATION 54

LIST OF FIGURES

Figure 1. An idealised neighbourhood structure	4
Figure 2. Courtyard housing locations within neighbourhoods	4
Figure 3. Courtyard housing in clusters	5
Figure 4. Courtyard housing clustered around a local focus	5
Figure 5. Courtyard housing may focus around community facilities	6
Figure 6A. Good street design is essential to the success of cluster design	6
Figure 6B. Integrating streetscape with house form	7
Figure 6C. Landscape and streetscape features	8
Figure 7. Using open space to enhance the image of an attractive environment	8
Figure 8. House and lot relationship are an important element of successful planning	10
Figure 9A. The relationship between houses is also important	10
Figure 9B. The relationship between houses at a detailed level	11
Figure 10A. Roofing techniques can enhance building to the boundary	11
Figure 10B. Other roofing techniques	12
Figure 11. Setting the garage back allows the house to remain the dominant street element	13
Figure 12. Using porticoes or verandahs can reduce the dominant effect of garages	13
Figure 13. One way of dealing with a sloping block	14
Figure 14. Lot boundaries on sloping land can be accommodated	14
Figure 15. Orientation for solar access	15
Figure 16. Accommodating courtyard and traditional housing	16
Figure 17. Avoiding overshadowing problems	16
Figure 18. Clustering functional areas in the public zone of the house	18

Introduction

Landcom has as its goal the successful integration of courtyard housing on a range of allotment sizes in its housing estates. This document has been prepared to provide both the principles for their integration into the estates as well as the principles for good housing design. It is intended to be used by home builders, home purchasers and for the information of the general public.

This document has also been produced to fill a gap in information available and should be read in conjunction with other relevant documentation.

COURTYARD HOUSES DEFINED

Courtyard houses are defined as houses which have been designed in such a way that all the principal living areas have an aspect and direct access to a reasonably sized courtyard which also forms the principal focus of the house. The courtyard may be located in the front, side or rear of the house and its essential character is as an outdoor room and is derived from the fact that it is enclosed by walls. The courtyard is typically paved with a perimeter of planting.

Courtyard houses have a number of very desirable characteristics which Landcom wishes to encourage. These are:

- maximising access to sunlight
- creation of a high level of privacy for the lot and safeguarding amenity for the neighbours
- maximisation of private open space
- creation of a high quality streetscape appearance and appeal
- consistent, but individual approach to home design.

The design principles in this document deal, firstly, with the desirable locational criteria within a neighbourhood context, then the way in which the groupings of courtyard houses are designed and finally with the design principles of the housing itself. It should be noted that any reference to North is intended to mean true North.

Neighbourhood Design

It is now recognised that people need to live in distinct neighbourhoods and to have areas which they relate to as their own particular neighbourhood. In the past the creation of these neighbourhoods occurred naturally with villages or neighbourhoods developing their own unique characteristics. Today it is much more difficult as suburbs spill into suburbs and the individual mobility of the motor car results in the creation of more homogeneous areas lacking in any differentiation.

The overall structuring form should therefore be one which reverts back to the neighbourhood, each being differentiated from the other by its overall form and theme and each having neighbourhood facilities as its overall focus. The neighbourhood is in turn broken down into a number of precincts each having its own focus. The underlying structuring device is the public transportation with the central facilities and each of the precincts having very good access to bus or rail facilities. The precinct foci should be no further than 400 m from the central neighbourhood focus to provide the basis of pedestrian activity as well as a bus route linking the foci and the central facilities.

The idealised structure is shown in Figure 1 with a neighbourhood consisting of four precincts tied together with the central facilities and open space and with good access to transportation for all precincts.

This overall neighbourhood model is intended for new areas but is equally applicable to all new development whether infill or green field sites. The scale may have to be different, but the basic principles remain the same.



COURTYARD HOUSING LOCATIONS WITHIN NEIGHBOURHOODS

Courtyard Locations

The locations for courtyard houses are therefore determined by the structure of the neighbourhood and the precincts. They have a definite place within this structure. They are placed in areas where they have good access to open space, transportation and within walking distance to community facilities. These are shown in Figure 2.

By enhancing the courtyard houses with their location close to open space, facilities and public transport, their relative attractiveness is increased and they will be seen as an alternative to traditional housing and so increasing housing choice and creating neighbourhoods of variety and vitality. Their setting creates the opportunity to develop themes and images related to the scale of housing. All these factors plus an underpinning of pedestrian related planning will contribute to the formation of viable communities.

Neighbourhoods should therefore comprise a number of precincts each with their own foci and within them the locations of courtyard houses are determined by:

- distance to public transport
- closeness to central facilities
- particular topographic features
- need to create foci for precincts villages
- need for creation of series of precincts
- suitability of site gradients
- closeness to areas of major open space.

CLUSTERS OF COURTYARD HOUSES

Within a precinct the courtyard houses are located in clusters according to a structure similar to the locational criteria for neighbourhoods. This would typically be as shown in Figure 3.

Courtyard houses should be designed in clusters each functioning as a cohesive entity ranging in size depending on the type of focus or the feature which is being related to. The design should allow for a theme to be established in the

FIGURE 1. AN IDEALISED
NEIGHBOURHOOD STRUCTURE

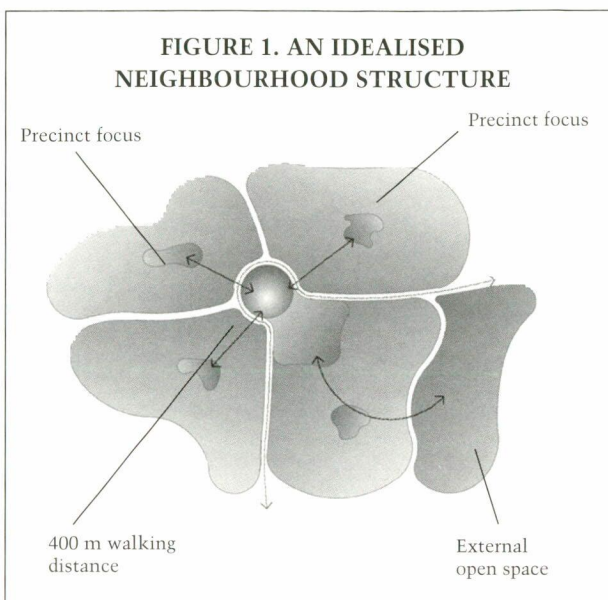
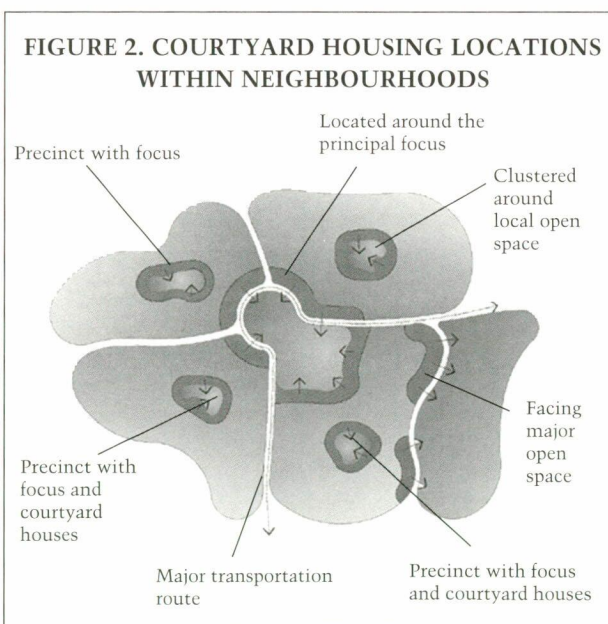


FIGURE 2. COURTYARD HOUSING LOCATIONS
WITHIN NEIGHBOURHOODS





housing and the streetscape The most successful are those which cluster around a small park which provides a focus for the community and a place for the children to play (Figure 4).

The focus for a cluster of courtyard houses may be a number of things, it may be:

- a location near the local community facilities
- an open space
- an important intersection.

In these ways a unique character is created and the courtyard houses are provided with desirable locational attributes.

The locational advantages should be reinforced with best practice principles in the actual layout design of the clusters themselves (Figure 5).

FIGURE 3. COURTYARD HOUSING IN CLUSTERS

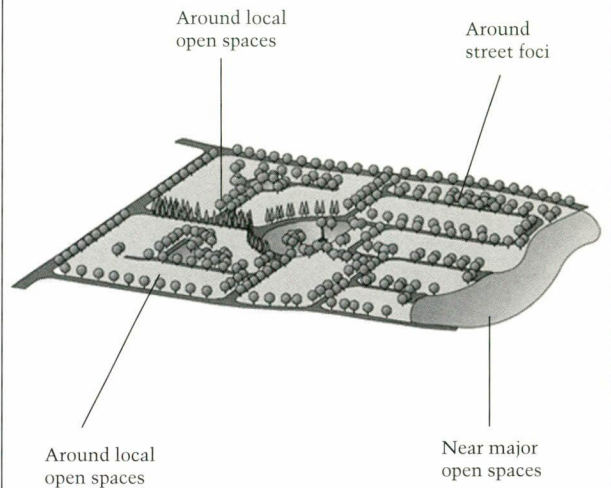


FIGURE 4. COURTYARD HOUSING CLUSTERED AROUND A LOCAL FOCUS

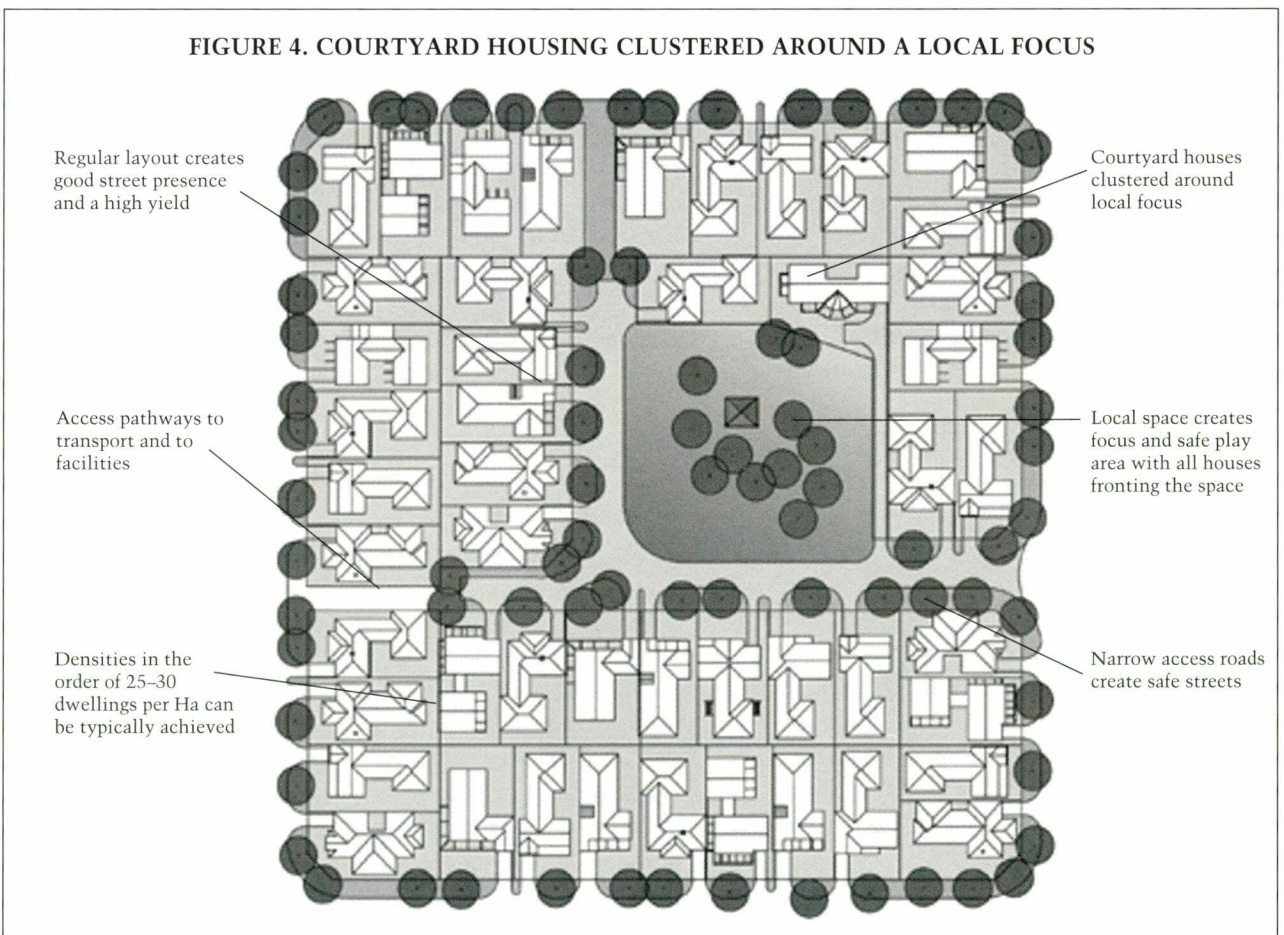
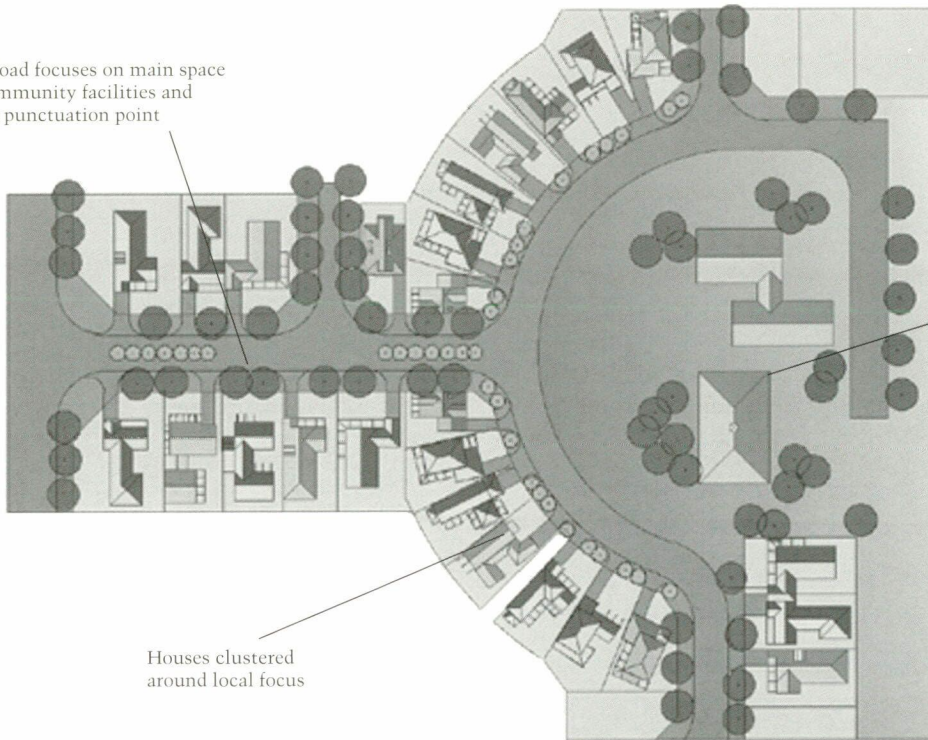




FIGURE 5. COURTYARD HOUSING MAY FOCUS AROUND COMMUNITY FACILITIES

Entry road focuses on main space and community facilities and creates punctuation point



Community facilities

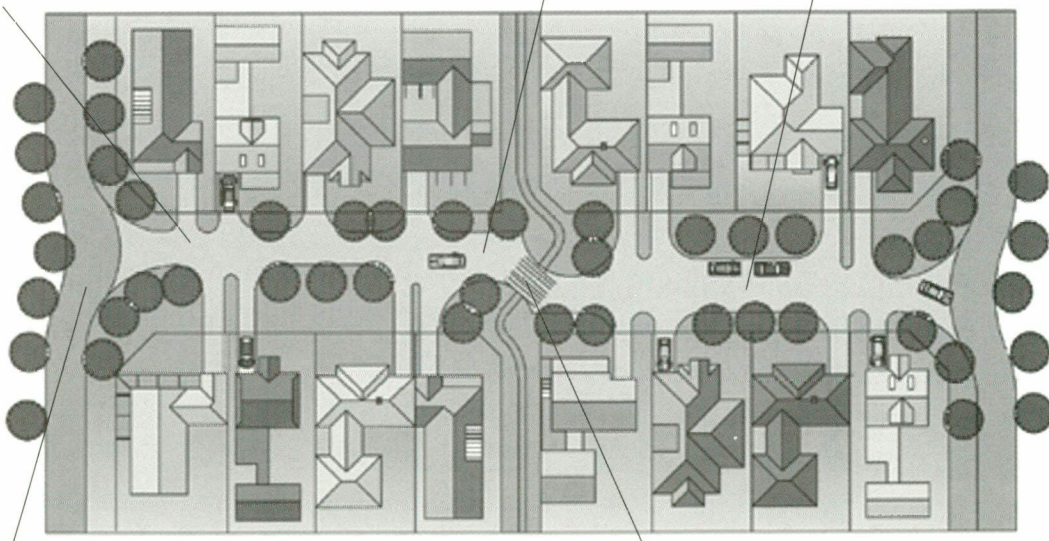
Houses clustered around local focus

FIGURE 6A. GOOD STREET DESIGN IS ESSENTIAL TO THE SUCCESS OF CLUSTER DESIGN

Narrow road carriageway reduces traffic speed and creates safe environment

Street meanders within regular layout

Narrow carriageway allows parking bays between paired driveways



Deviations in carriageway slow traffic and reinforce entry intersections with materials change

Deviations in roadway to either side of reserve deflect traffic allowing crossings and creating areas for landscaping



Important criteria should include:

- use of zero lot line building on the boundary in order to gain maximum utility from the allotment of land.
- orientation of the major street networks to achieve a predominant east-west axis for the houses.
- treatment of the streetscape as a number of elements including roads, houses, landscaping, houses and parking which come together to create a whole.
- each element should not be treated in isolation. Careful consideration needs to be given to the relationships between the houses and the spaces which are created.

Street design is a very important component of the cluster design (Figure 6A). It is critical that the scale of the street reinforce the scale of the houses (Figure 6B) and the street provides good opportunities for landscape and streetscape treatment (Figure 6C).

The resulting environments which are created will be very attractive in their own right and will be sought after living environments particularly for those people who want an attractive alternative to conventional housing.

A significant benefit from the adoption of this approach is that residential areas will no longer be characterised by street after street of similar looking houses, instead the dominant characteristic will be one of a series of local foci and communities, each differentiated by the housing form and unique structure of the clusters. Community development will be enhanced by providing forums for people to play and meet and have pride in their own environment.

In Figure 7 the courtyard housing fronts the open space gaining from the image of the attractive environment. Typically, traditional housing backs onto the courtyard houses, providing a mix of both forms and both benefiting from the environment created.

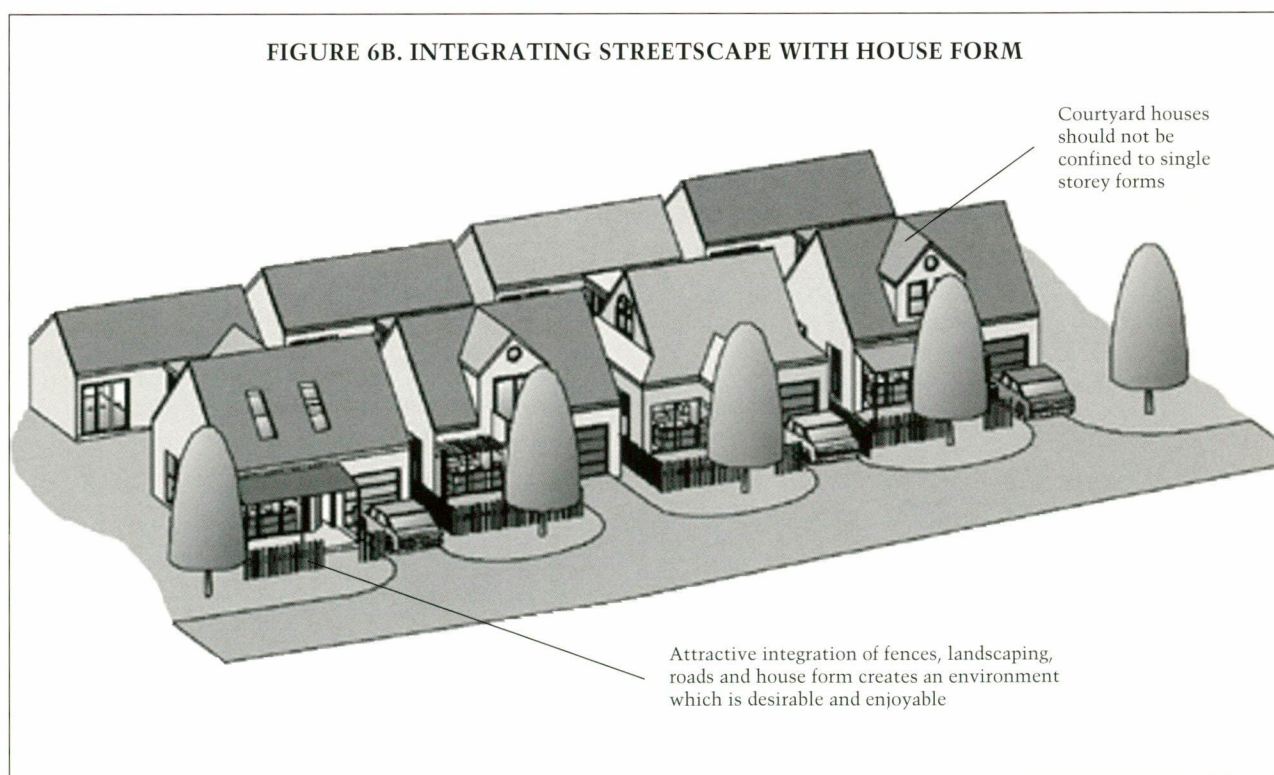




FIGURE 6C. LANDSCAPE AND STREETScape FEATURES

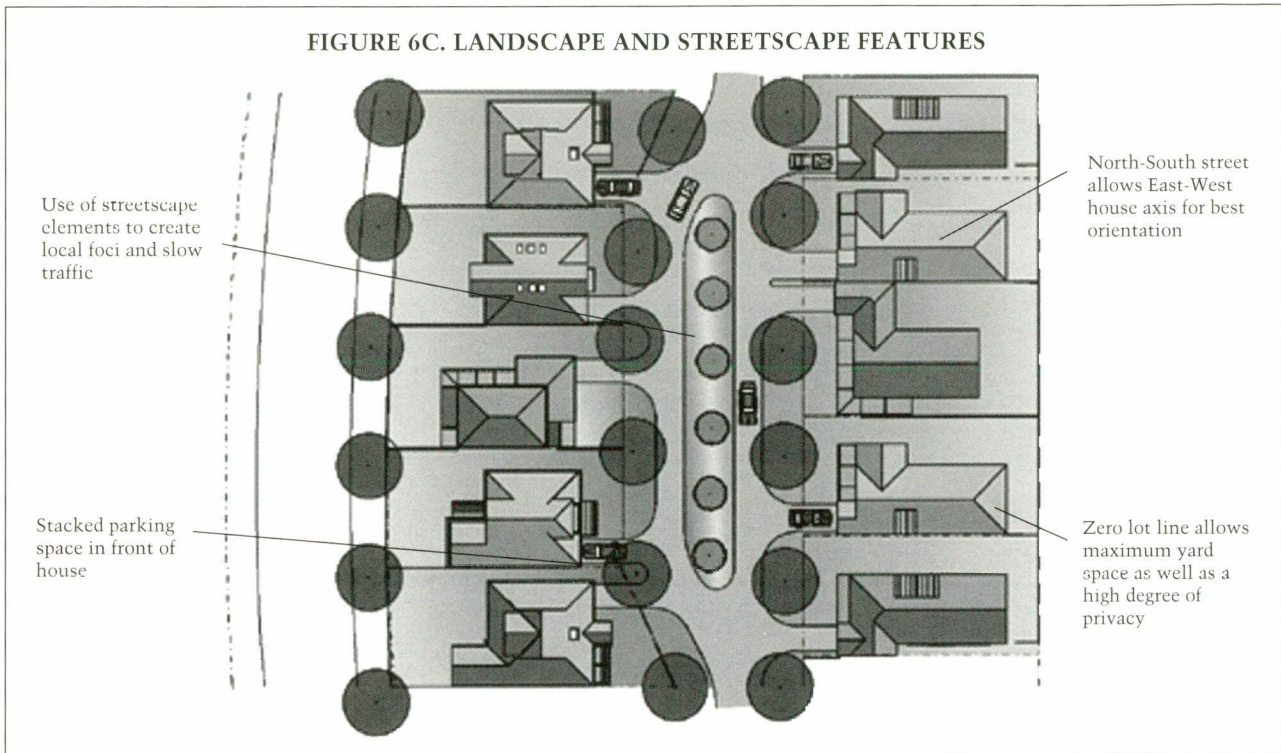
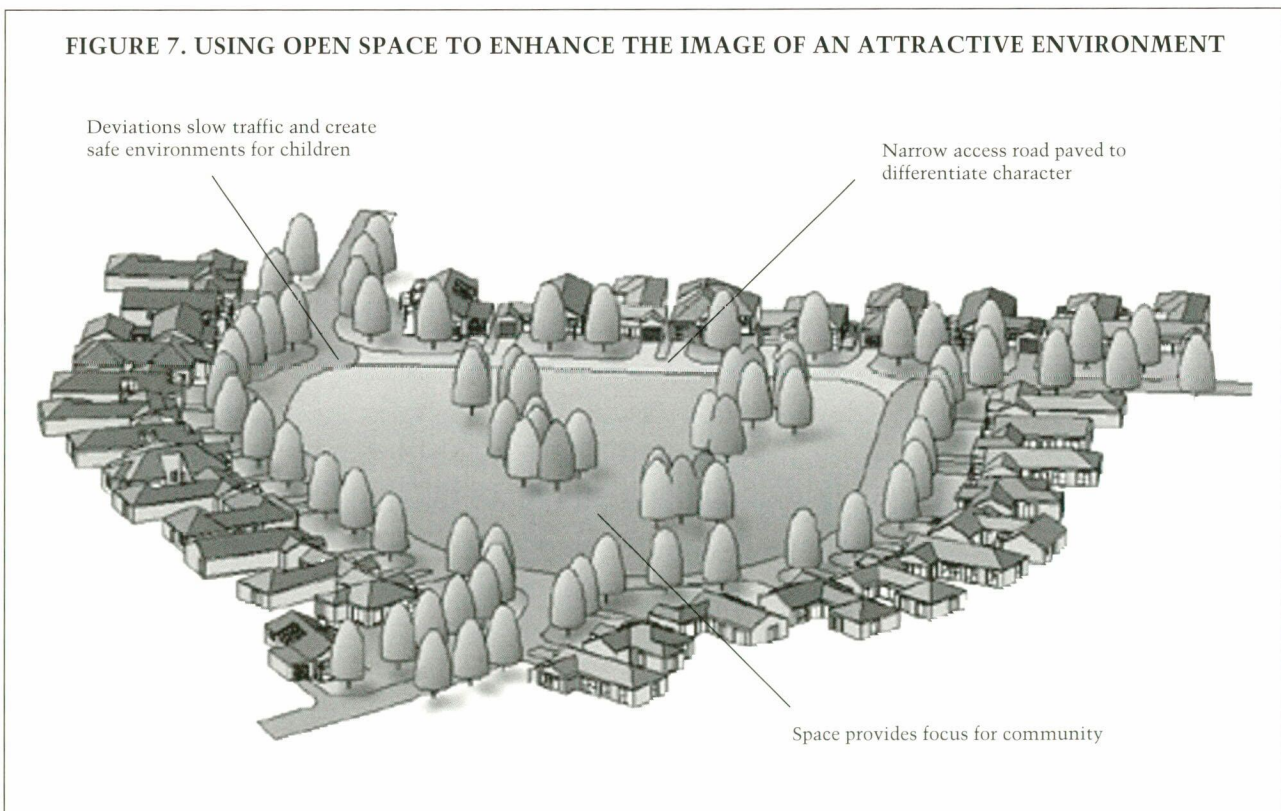


FIGURE 7. USING OPEN SPACE TO ENHANCE THE IMAGE OF AN ATTRACTIVE ENVIRONMENT



House Design

HOUSE LOT AND HOUSE RELATIONSHIPS

The house cannot be divorced from the allotment which it is placed on. Unfortunately the normal development process is one which deals with the land subdivision separate from the house design. It is therefore necessary for guidelines and controls to ensure that the final relationship between house and lot is satisfactory.

The house lot relationship is one which requires the assessment of the attributes of the land in a careful site analysis at the same time as the consideration of the design of the house (Figure 8).

The characteristics of the house and its design should take into account the surrounding development, slope, natural vegetation, orientation to both sun and any views and the potential relationship between the house and the lot as well as the relationship with surrounding buildings (Figure 9A). It is not sufficient to merely provide the lot and hope that these issues will be taken into consideration.



FIGURE 8. HOUSE AND LOT RELATIONSHIP ARE AN IMPORTANT ELEMENT OF SUCCESSFUL PLANNING

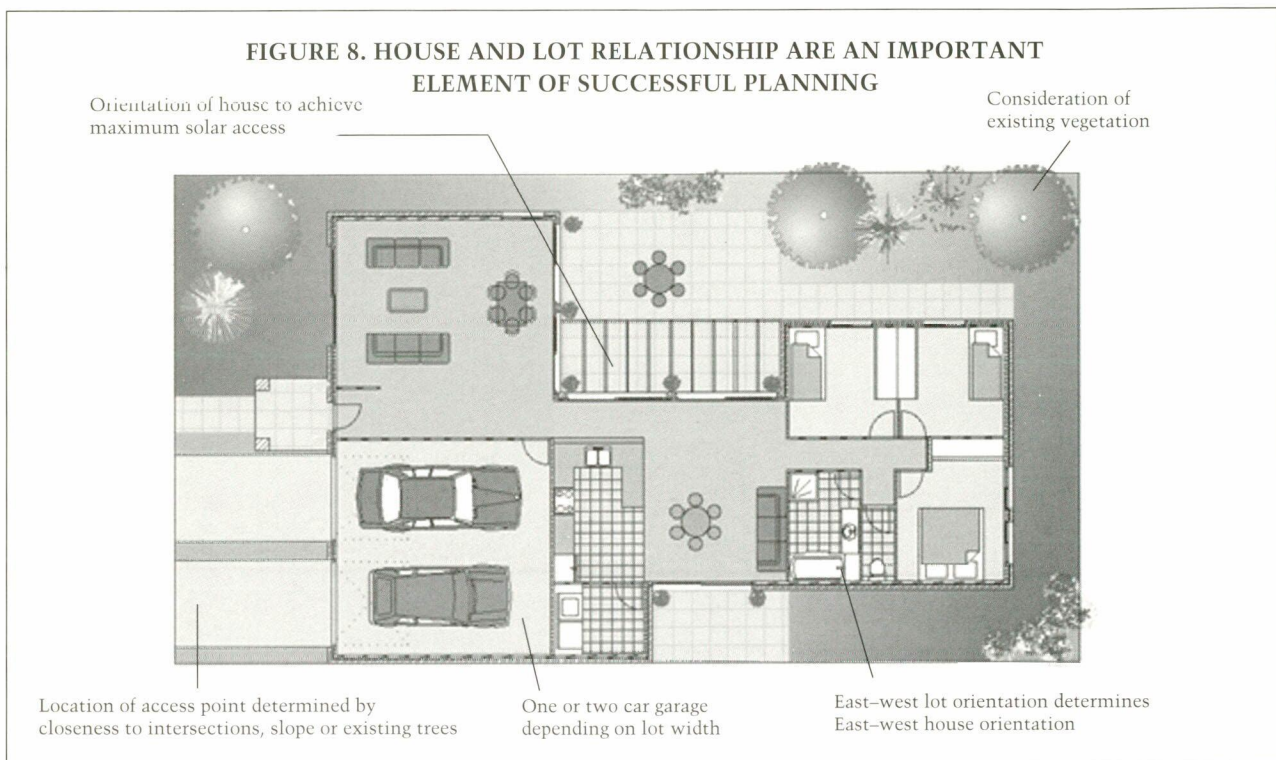


FIGURE 9A. THE RELATIONSHIP BETWEEN HOUSES IS ALSO IMPORTANT

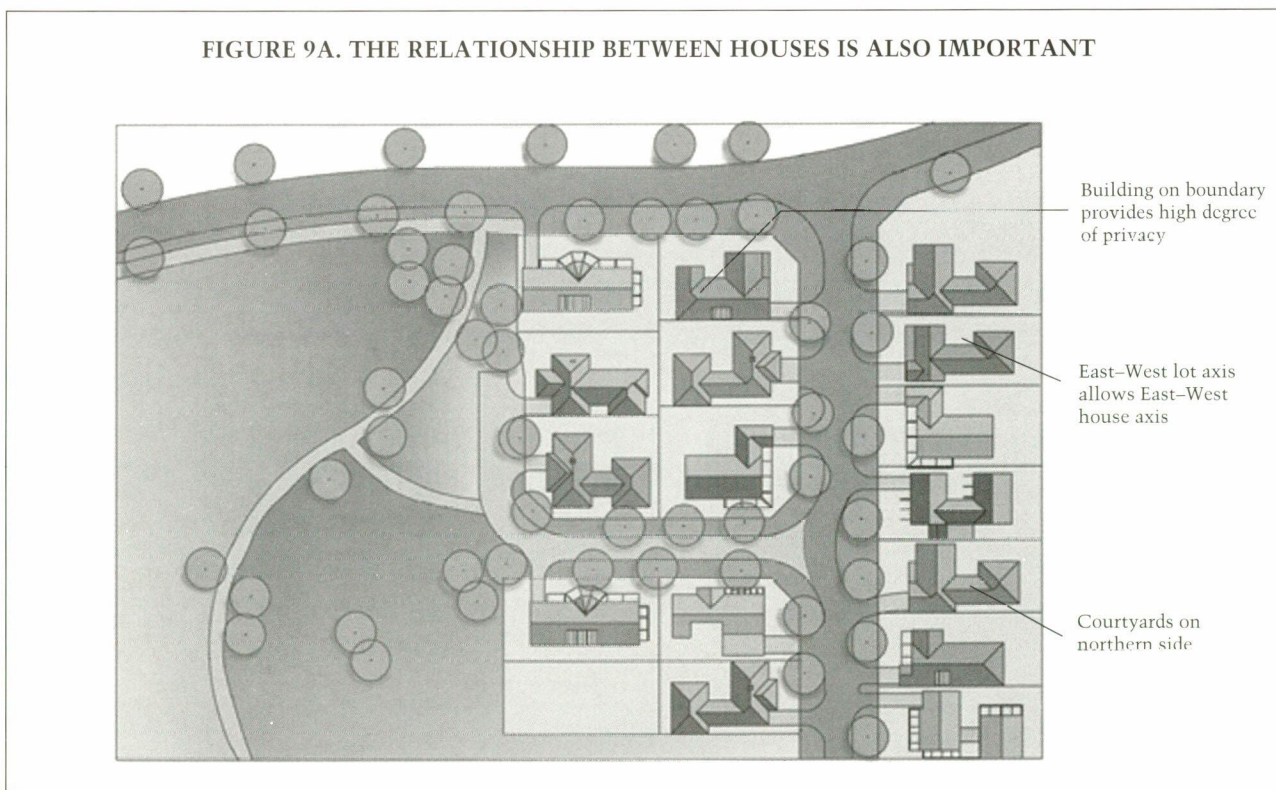
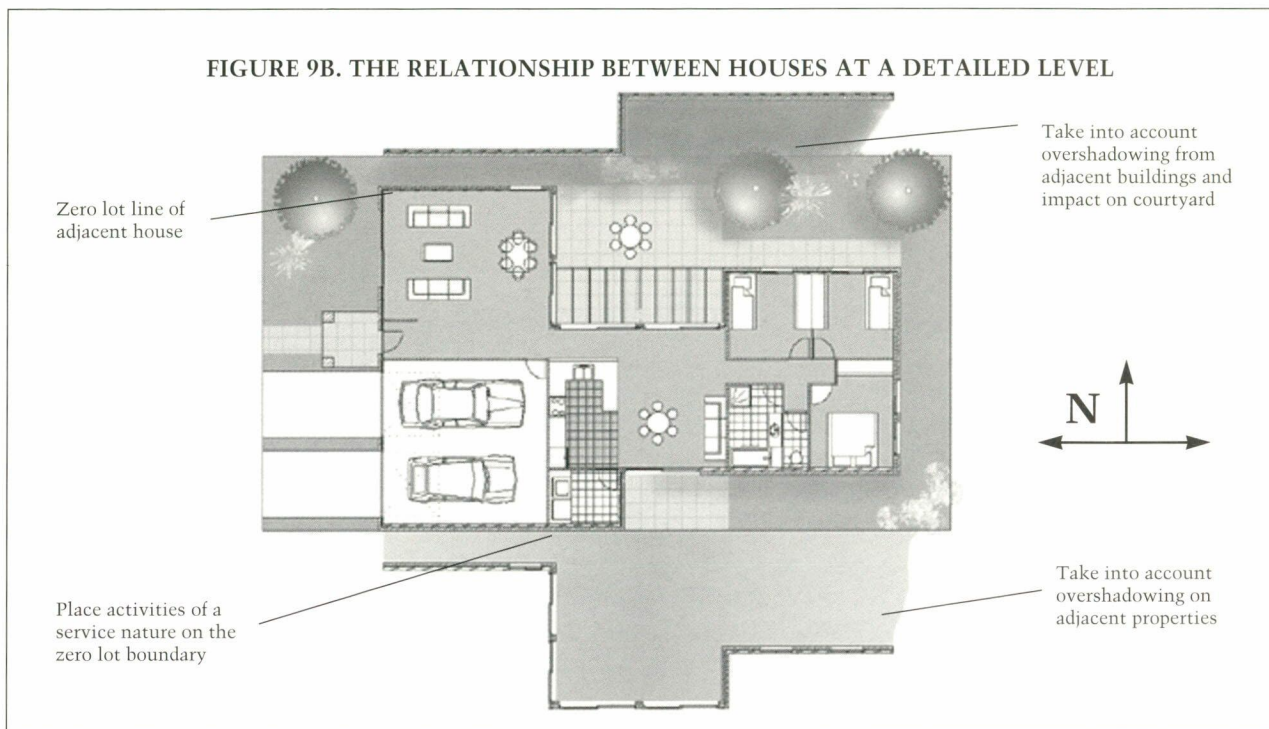




FIGURE 9B. THE RELATIONSHIP BETWEEN HOUSES AT A DETAILED LEVEL



The relationships between the houses should be considered as part of the overall layout in respect of the privacy, solar access etc (Figure 9B).

On a detailed level the considerations are as shown below. It is essential that the house be considered in conjunction with its neighbours.

With courtyard houses the house should always be built on at least one side boundary in order to achieve maximum utility of the land. The land area of this type of housing is always limited and the most efficient use of the available area is to not lose space along one boundary with setback space which has very little utility. Roof drainage can be dealt with by using techniques for building on the boundary (Figure 10A).

In this way either hips or gables can be accommodated on the boundary with a variety of building styles without having to resort to easements for eaves, gutters etc. (Figure 10B)

Other alternatives include the use of an offset of 50mm to gable ends to allow for barge board overhang and 200mm to the wall for a fascia and gutter.

FIGURE 10A. ROOFING TECHNIQUES CAN ENHANCE BUILDING TO THE BOUNDARY

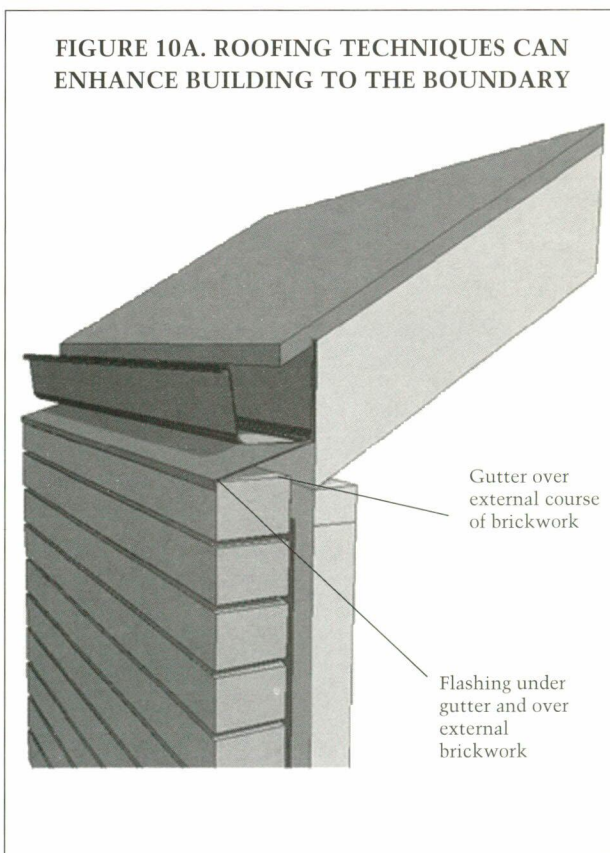
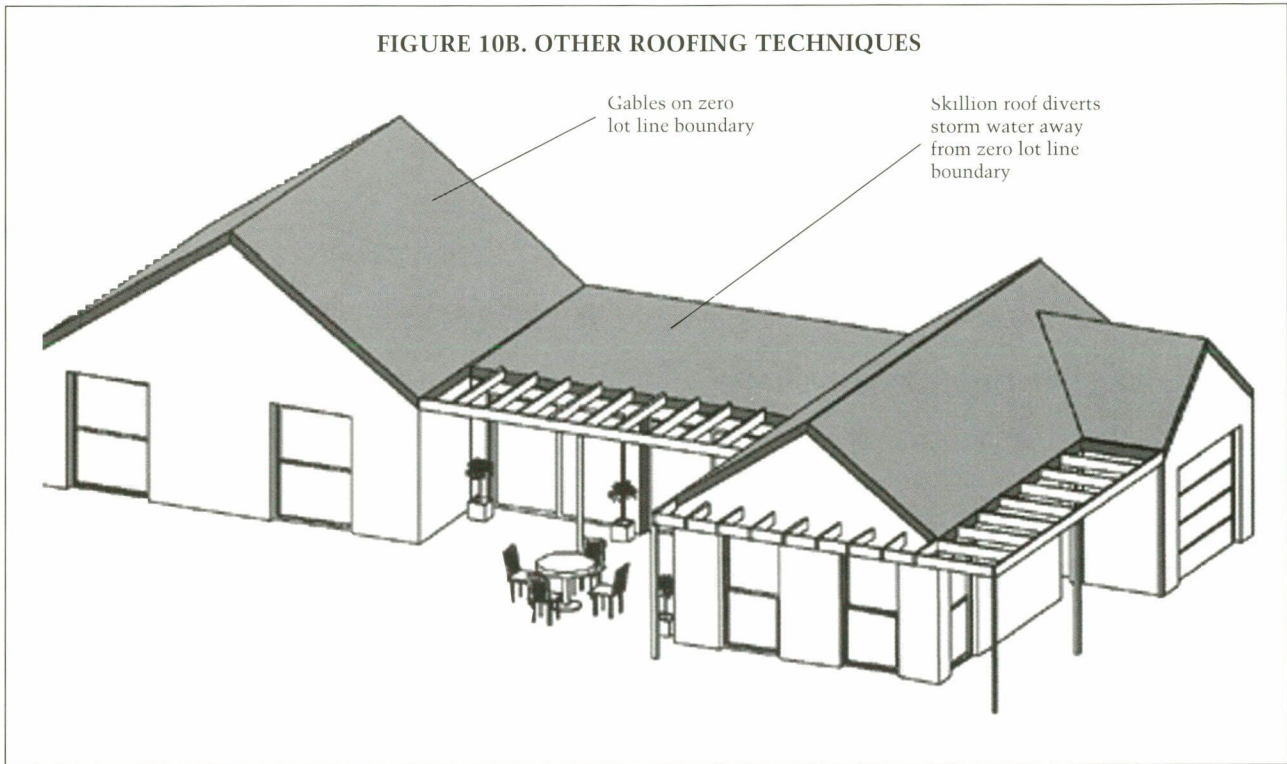




FIGURE 10B. OTHER ROOFING TECHNIQUES





CAR PARKING

Car parking in courtyard housing can take up a significant area of land. There needs to be accommodation for at least two cars. Where possible the garages should be set back behind the front of the house in order to prevent a garage dominated environment (Figure 11).

The front of the house then becomes the dominant streetscape element.

Where the design of the house requires either a flush front or a projecting garage then elements such as verandahs, porticoes or porches should be provided to create alternative streetscape elements (Figure 12).

Where double car garages are provided the front setback may be reduced as the stacking distance is not required.

FIGURE 11. SETTING THE GARAGE BACK ALLOWS THE HOUSE TO REMAIN THE DOMINANT STREET ELEMENT

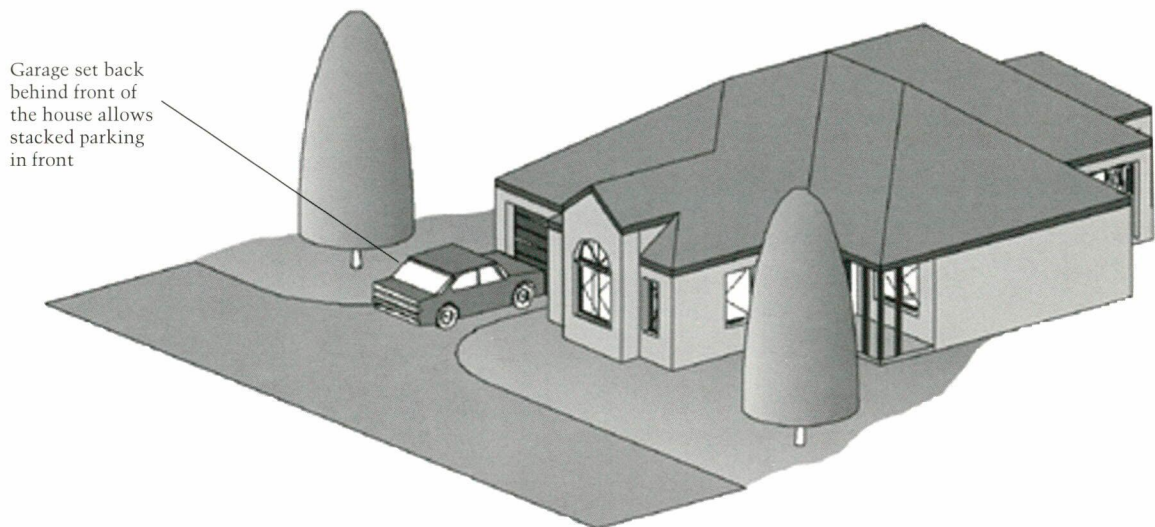
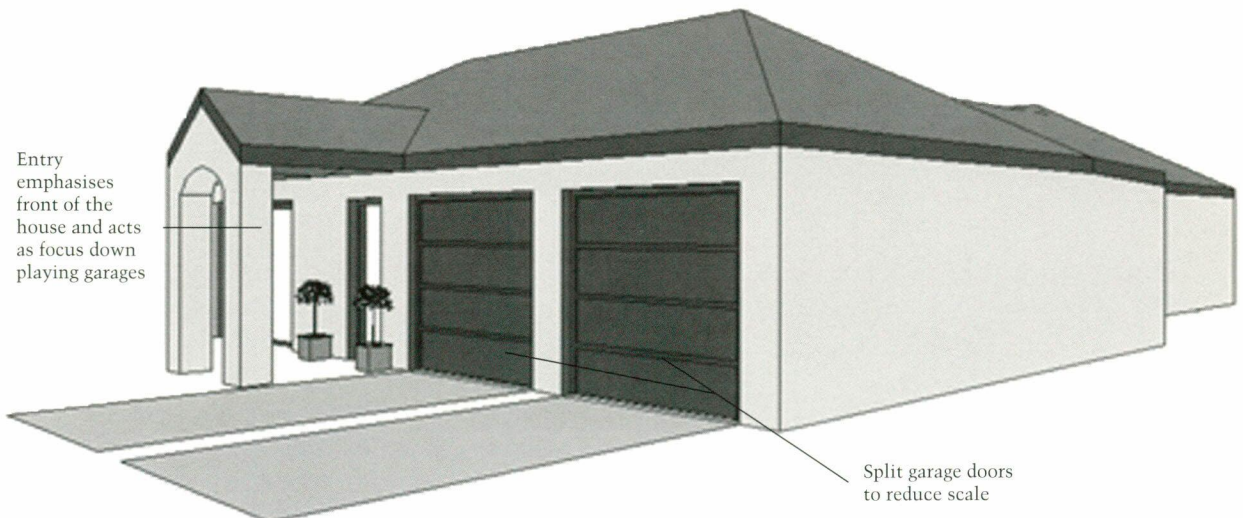


FIGURE 12. USING PORTICOES OR VERANDAHS CAN REDUCE THE DOMINANT EFFECT OF GARAGES





BUILDING ON SLOPES

Slopes can be difficult to accommodate with courtyard housing as there is very little room in which to grade any slope. Typically it is best to limit crossfall to under 1m and fall along the site to under 2m. However, if the cost of measures like building garages under the houses and side retaining walls can be borne the much steeper slopes can be accommodated (Figure 13).

Where side retaining walls are used the zero lot line boundary can be on the uphill or downhill side with the necessary easements for support (Figure 14).

There are economies to be made where the land development process allows the pre-benching of building sites which will establish building levels prior to construction. In this case greater falls may be accommodated with preconstructed retaining walls.

FIGURE 14. LOT BOUNDARIES ON SLOPING LAND CAN BE ACCOMMODATED

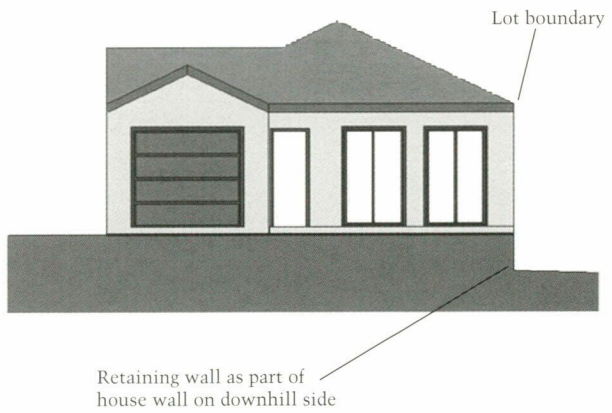
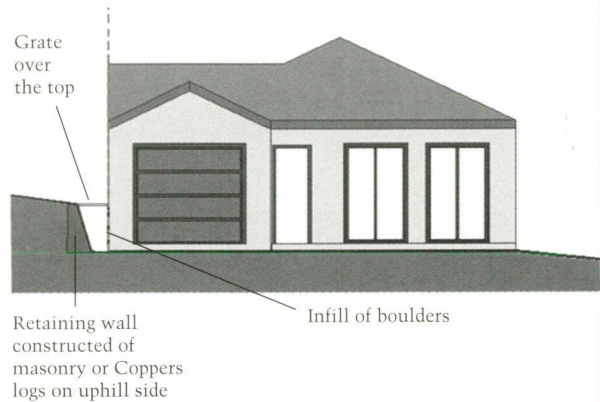
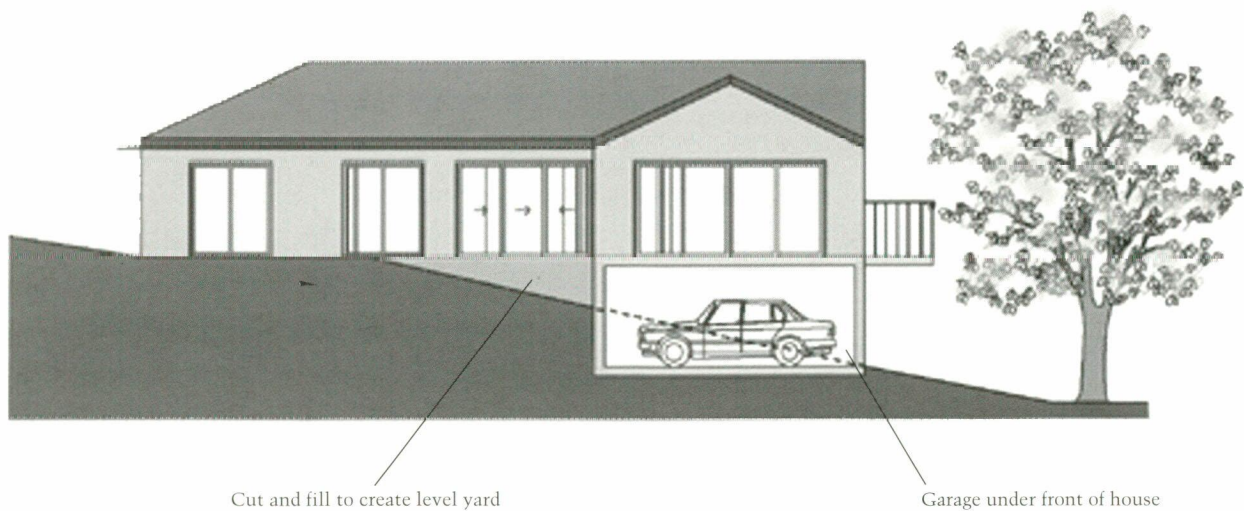


FIGURE 13. ONE WAY OF DEALING WITH A SLOPING BLOCK



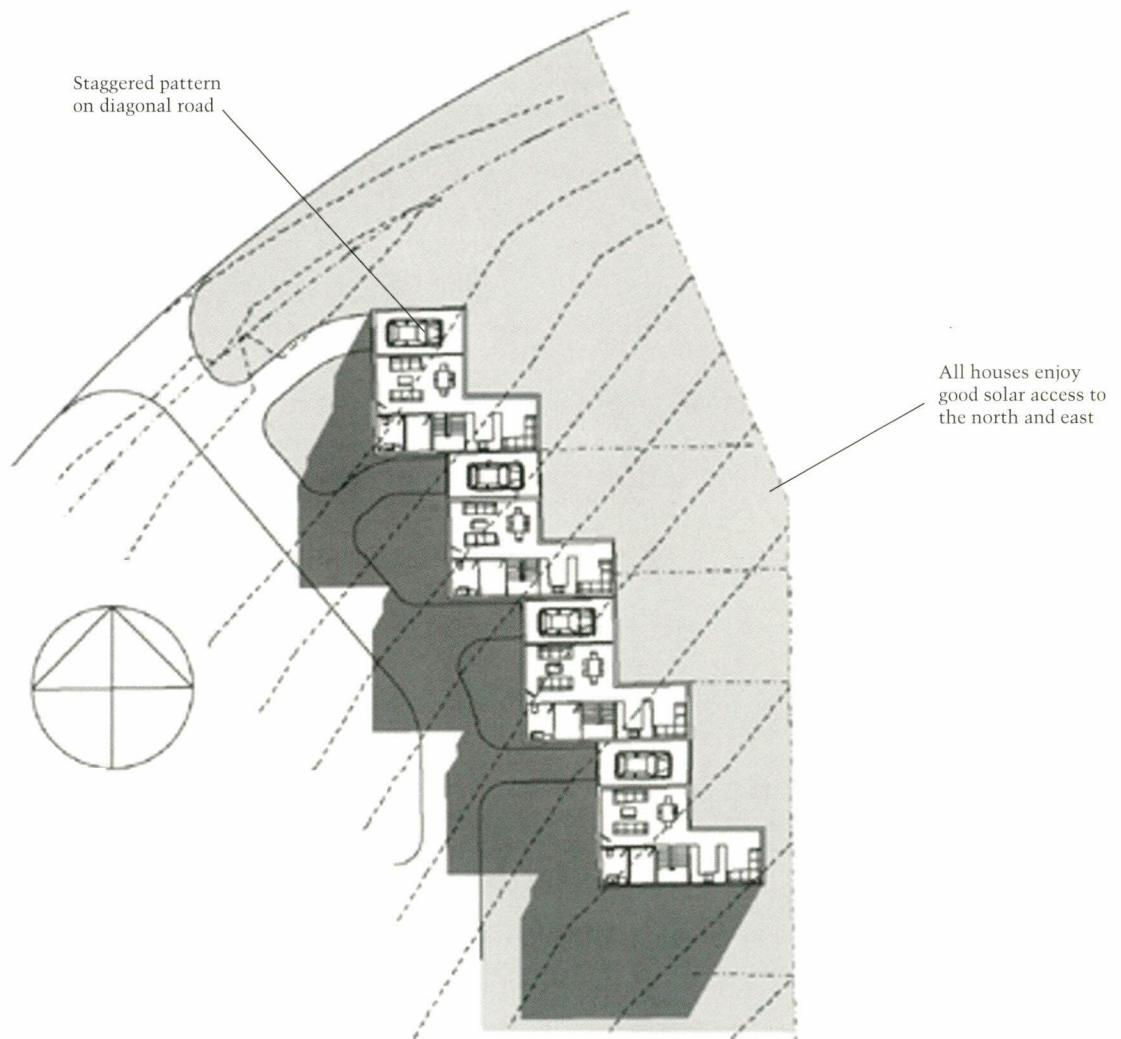


ORIENTATION FOR SOLAR ACCESS

Two storey houses are often very difficult to site as by their very nature they cause overshadowing problems. This problem can often be overcome by the careful siting of two storey houses to situations where they may all have north facing back yards thereby causing minimal overshadowing. Other situations are on corner allotments where they only overshadow the road space. Where the above are not possible then the houses can be designed in such a way that they can be site planned in a staggered pattern. This allows all houses to enjoy good solar access.

Single storey houses are not as difficult to site as the extent of overshadowing is not as great. The guidelines have already provided comments on the best axis for houses to achieve good solar orientation. In closer situations, however, It is still possible to achieve acceptable results if the roof form is designed to allow a minimum of overshadowing such as is illustrated below on 9m wide allotments in winter sun conditions (Figure 15).

FIGURE 15. ORIENTATION FOR SOLAR ACCESS





RELATIONSHIPS WITH TRADITIONAL HOUSING

The guidelines provide the controls and information about how to ensure that the relationship between courtyard houses is well managed and provides a good outcome. There is a problem, however, with the relationship at the interface between courtyard and traditional houses. The problem stems from the fact that traditional houses do not have the stringent setback and envelope requirements which courtyard houses have. It is necessary therefore to control the space between the houses where this situation arises. This will avoid the problems of overshadowing and overlooking (Figure 16).

A side setback will be required for a two storey house where it is contiguous with the courtyard of the adjacent house. The extent of the setback will be dependent on the height of the building, the orientation, degree of slope and the ability to allow the required light penetration (Figure 17).

FIGURE 17. AVOIDING OVERSHADOWING PROBLEMS

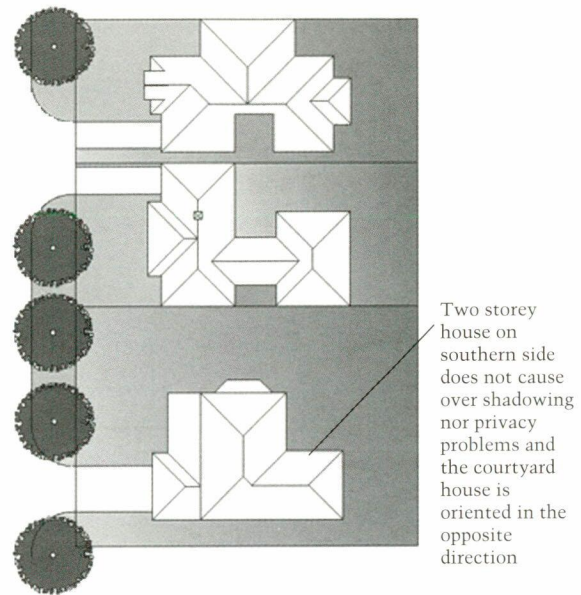
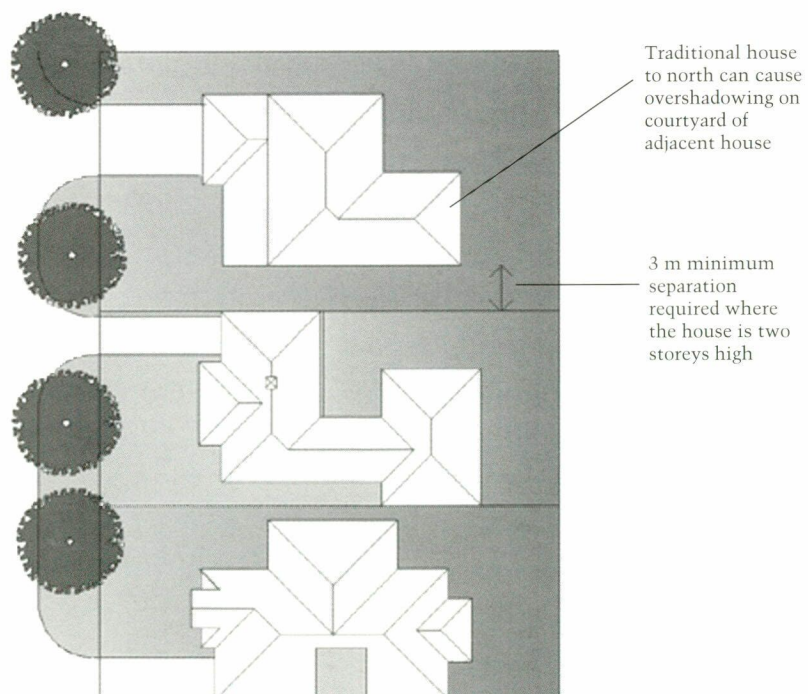


FIGURE 16. ACCOMMODATING COURTYARD AND TRADITIONAL HOUSING



House Planning

The success of any house depends on the way in which it functions. There are a number of fundamental principles which should be adhered to as they will assist in the creation of better functioning houses.

Fundamental to good house planning is the zoning of the functions of the house itself. There are two principal zones, the public and the private zones. It is important that these be clearly demarcated and logically planned.



PUBLIC ZONE

The public zone is the area which is most often on show to the public when visitors are received. This includes the entry, lounge and dining areas with also limited use of the bathroom facilities.

It is useful if these areas are clustered together (Figure 18). Associated with the dining area is the kitchen facilities and so this also needs to be close by for ease of servicing.

Entries and the way in which they are handled are very important to the initial perceptions of the house and they can provide a real focus to the house. Entries can be designed to serve as a small porch and be an area where the occupants can sit and relate to the street. This can encourage community development by providing an area where community interaction can occur.

The way in which the front door opens into the house is also important. Resident's preference is often for a small hallway as a semi-public area where strangers can be talked to without the strangers looking into the remainder of the house (Figure 19). A minimum position is a door which opens into the middle of the room thereby shielding the occupants from view.

Front doors should also be designed to assist security and be placed in areas where people standing outside the door are able to be viewed by the occupants. Any glass used in the front door should be opaque.

In general if lounge, dining and passageway areas are combined into one space a much more spacious feel is created compared with the number of small rooms typically found in small houses. A feeling of light and spaciousness is created if the rooms can relate to the front or to an internal courtyard where there is use of large areas of glazing. This can make a very significant difference to the feel of a house. The external space contributes to the internal space.

FIGURE 18. CLUSTERING FUNCTIONAL AREAS IN THE PUBLIC ZONE OF THE HOUSE

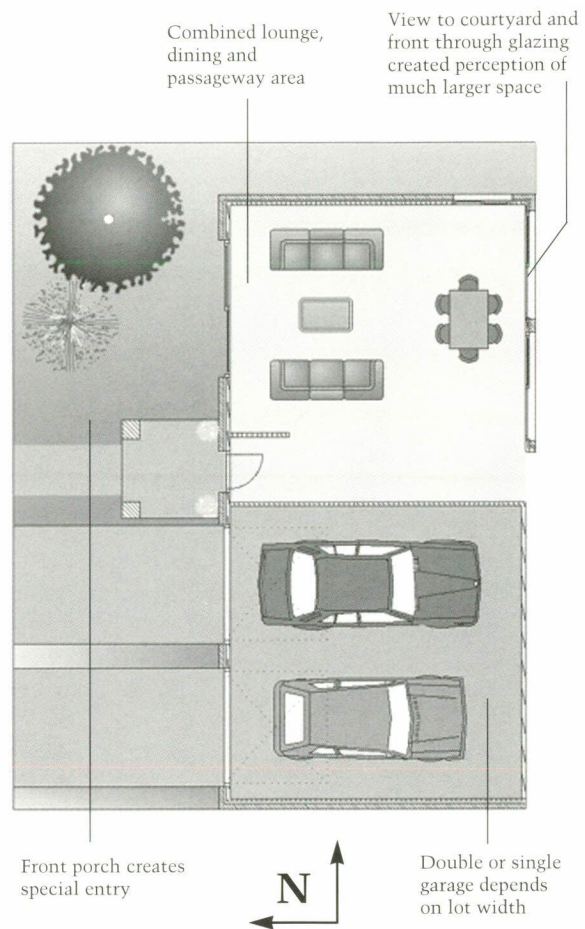
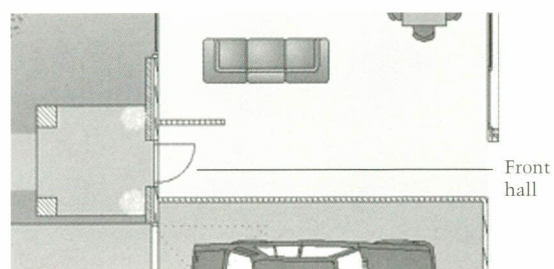


FIGURE 19. THE HALL PROVIDES A SEMI-PUBLIC AREA





BEDROOM ZONE

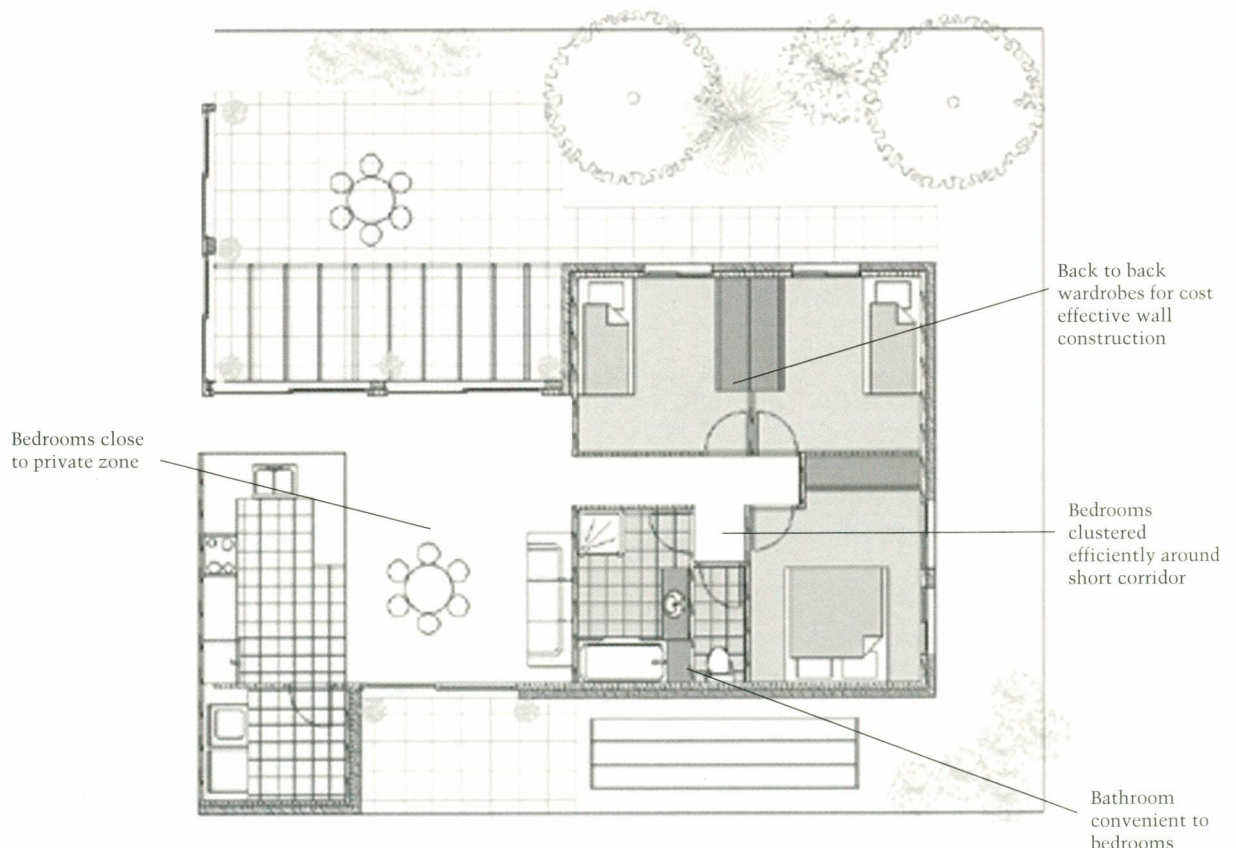
The bedroom relationships created should reflect the requirements of the people who the courtyard housing is aimed at. The typical family buying these houses will be young couples who either have young children or about to have them. Bedrooms should therefore be clustered together so that parents can be near young children. This has both a functional purpose such as being nearby when children cry at night as well as providing a psychological purpose of providing the children with peace of mind that their parents are close by (Figure 20).

The above requirements are different when the prospective occupants are second or third time buyers. In these instances the children are older

and it is preferable for the parents bedroom to be separated from the children's rooms to both provide privacy as well as not requiring the night time proximity. Provision of personal space is a priority in these situations.

Bedrooms should preferably be located close to the private areas. It is also an advantage for the bedrooms to be near the rear of the house as this means that guests do not need to pass the open doors of bedrooms when entering the house. It is also better for the bedrooms not to have access from the family rooms directly as use of this area during the night may disturb the children.

FIGURE 20. THE BEDROOM RELATIONSHIPS SHOULD REFLECT THE NEEDS OF THE TARGET MARKET





PRIVATE ZONE

The private zone is the focus of the daily activities of the household (Figure 21). The main rooms are the kitchen and family rooms together with the bathrooms. The relationship between the kitchen and family rooms is particularly important with the age spectrum which courtyard housing is usually aimed at. Families which typically have small children need the physical proximity between the kitchen and family rooms. This determines how happy a toddler may be to play in the family room. Family rooms need also to be able to accommodate seating and other furniture such as a television set.

It is very important that this zone is well oriented to sunlight as it is the venue of most of the household activities and is used to the greatest extent. The family room should also open to the private open space of the dwelling to

again allow an easy relationship between the kitchen area and outdoor spaces used by toddlers.

Bathroom and WC facilities should be conveniently located to these rooms and laundries should be near the kitchen to minimise the extent of walking. Laundries should also have convenient access to the outside and drying facilities.

The family room should be as far as possible away from the lounge and dining areas to enable parents to entertain while children are watching television so as to prevent one lot of activities spilling over onto the other. On the other hand the kitchen should be located near the dining area. The most satisfactory relationship is to have the kitchen between the dining and family rooms being close to both any servicing both activities well.

FIGURE 21. THE FUNCTIONS OF THE PRIVATE ZONE





HOUSE STYLE

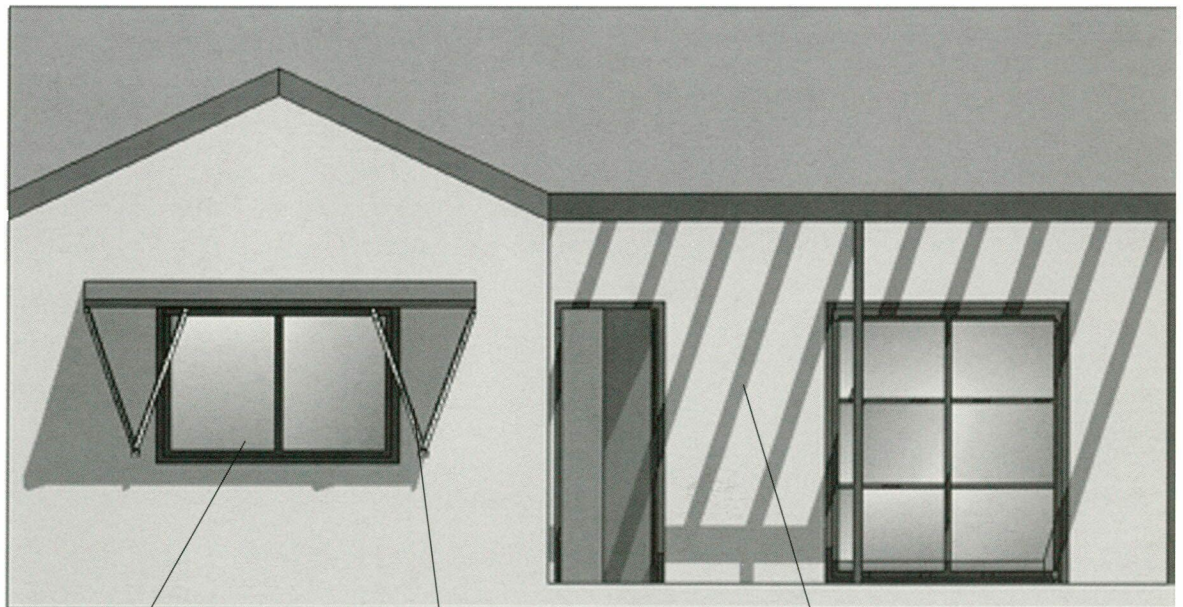
House style can play a very important role in enhancing the desirability of courtyard housing. The design principles described so far encourage the clustering of these houses. The use of a common style for these clusters will provide the opportunity to develop a theme and common image which people can identify with.

Where a common theme is used, the individual variation of one house from another will become much more obvious with a resultant image of vitality and interest. The clusters will be further reinforced with common landscaping and fencing themes creating an overall attractive living environment, particularly if clustered around an open space.

Styles should be developed which are much more based on timeless proportions rather than the excesses of a particular style. The style should emphasise a cottage theme since this is appropriate to the scale of the houses. The style should be simple but with variation created by the use of external elements which are functional sun control devices.

Low cost elements such as sun hoods and pergolas are much more effective than the typical 450–600mm eave around houses and can do much to provide effective sun control while being attractive streetscape elements in their own right. Their use also provides the play of light and shade on the facades thereby creating an ever changing visual environment (Figure 22).

FIGURE 22. LOW COST ELEMENTS SUCH AS PERGOLAS AND SUN HOODS ARE MORE EFFECTIVE THAN EAVES



Close coupled relationship with window creates very effective sun control

Hood supports provide delicacy of appearance

Pergola provides dappled sunlight with effective seasonal control if planted with deciduous vines

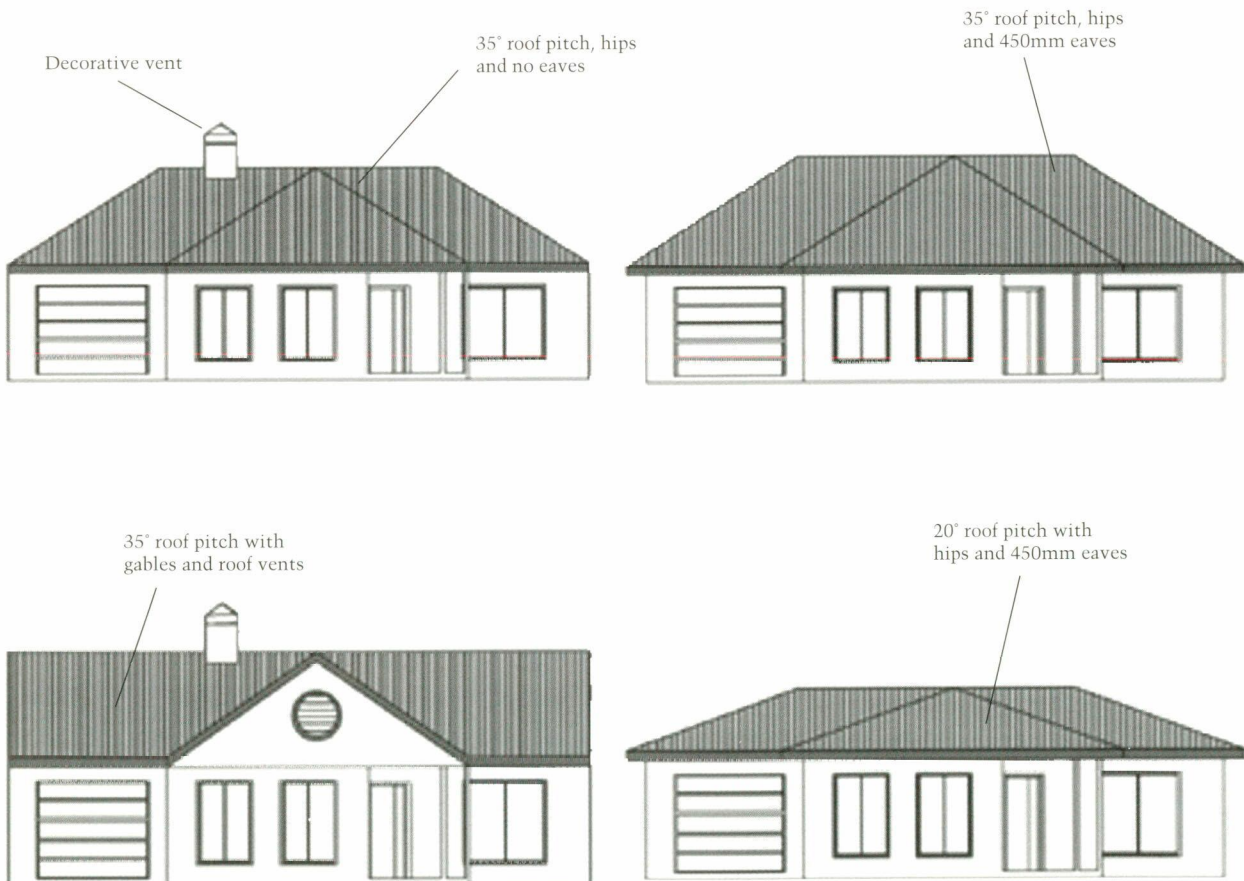


ROOF FORM AND STYLE

The impact of different roof pitches can be quite significant. Low gradient roofs create a very squat appearance while steeper pitch roofs create a much more graphic streetscape appearance. Steeper pitch roofs therefore assist in making the houses appear much larger and have much more presence, while also having a more attractive appearance. This is also important in widening the appeal of courtyard housing.

As can be seen in Figure 23 the roof has a very fundamental impact on the appearance of houses. However it is the combination of all the elements which go towards the making of the total environment. All aspects should be considered and the totality will make a unique environment which will have built-in appeal, variety and vitality and will successfully create a very satisfactory living environment at higher densities.

FIGURE 23. THE PITCH AND FORM OF THE ROOF AFFECTS THE APPEARANCE OF THE HOUSE



Common Problems

Courtyard houses are now firmly established as a housing form in NSW. However, many of them have problems which limit their appeal and mean that they are not seen as the alternative which they are to traditional housing. The following is a consideration of many of the features of existing courtyard housing products and a discussion of alternative ways in which the housing could be designed.

HOUSE LOT

The house in Figure 24 is a typical example of currently available product. As can be seen there is very little relationship between the house and its lot. It is difficult to achieve a satisfactory siting and the zero lot line siting cannot be effectively used as it results in an unusable space for living room to open out to. This means a much greater land area is required around the house in order to achieve the same useable space.

A positive aspect is the front of the house where the house and not the garage is used as the principal streetscape element.

The alternative is a design which creates a very light and open feeling house through its orientation to the private space and good use of the zero lot line application. This also results in a high level of privacy (Figure 25).

Figure 26 is another current design which requires a large lot to achieve the spaces around it. While it is acceptable in its setting the alternative is shown in Figure 27.

While the land area is the same the spaces around the house are much more useable and the house will feel much larger with its greater orientation to the outdoors.



HOUSE LOT

FIGURE 24. A TYPICAL COURTYARD HOUSE CURRENTLY AVAILABLE

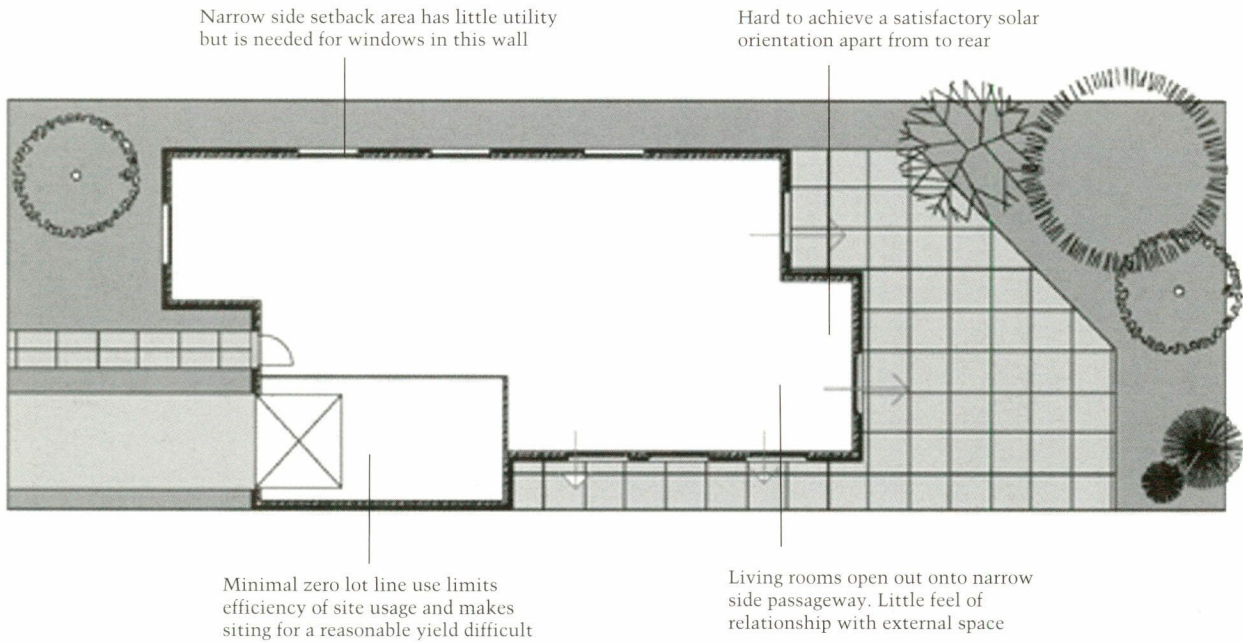
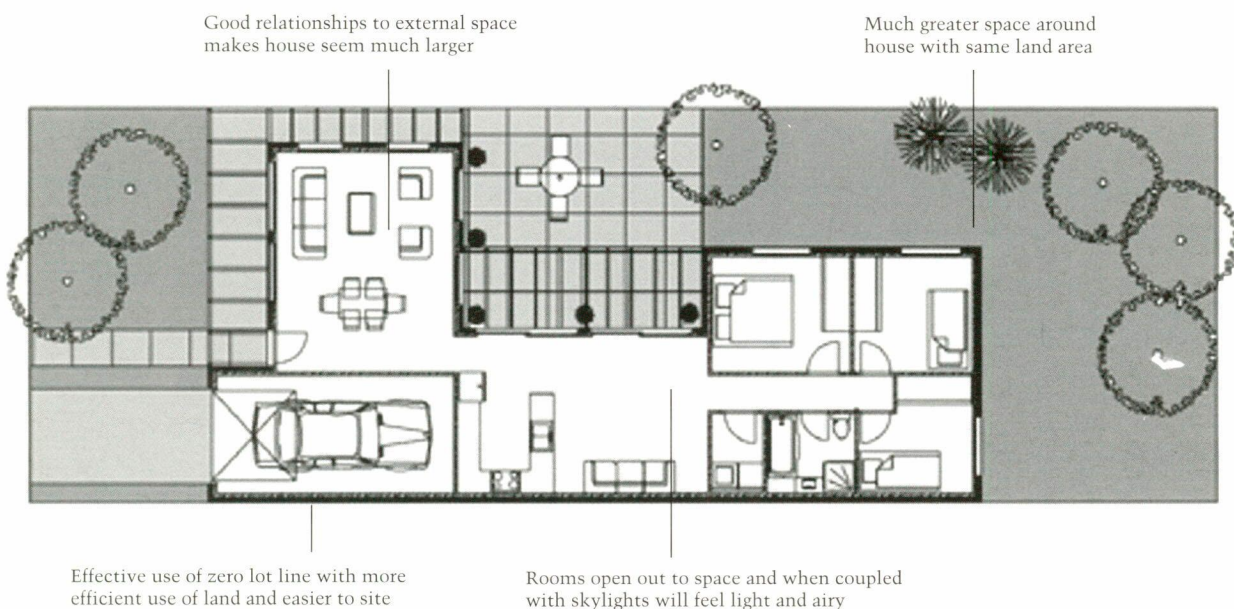


FIGURE 25. AN IMPROVEMENT TO THE DESIGN MAKING BETTER USE OF ZERO LOT LINE





HOUSE LOT

FIGURE 26. A TYPICAL COURTYARD HOUSE REQUIRING A LARGE LOT

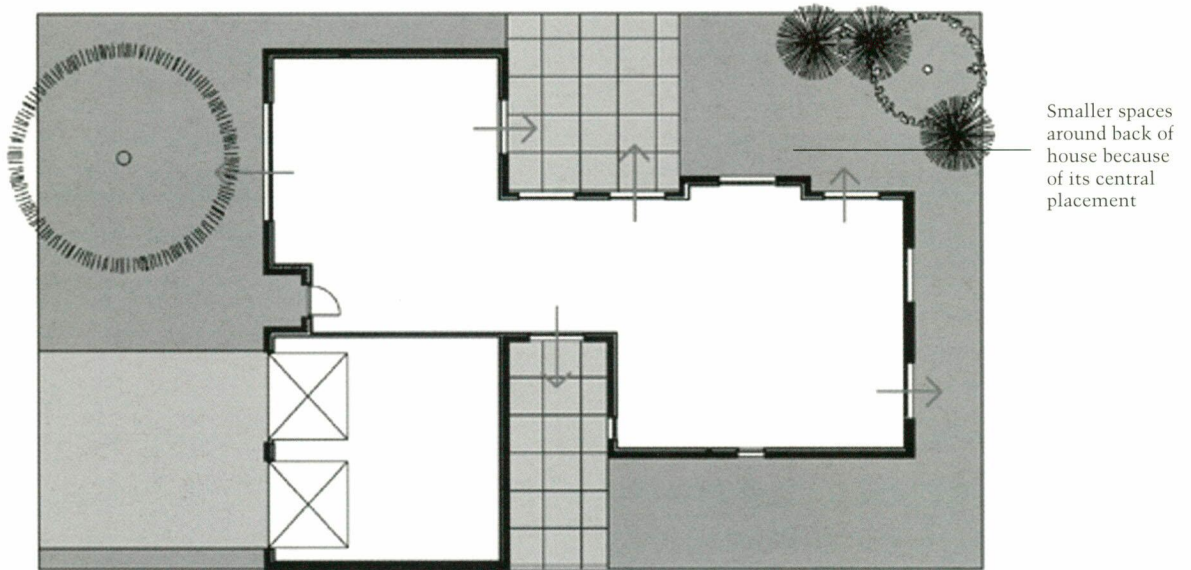
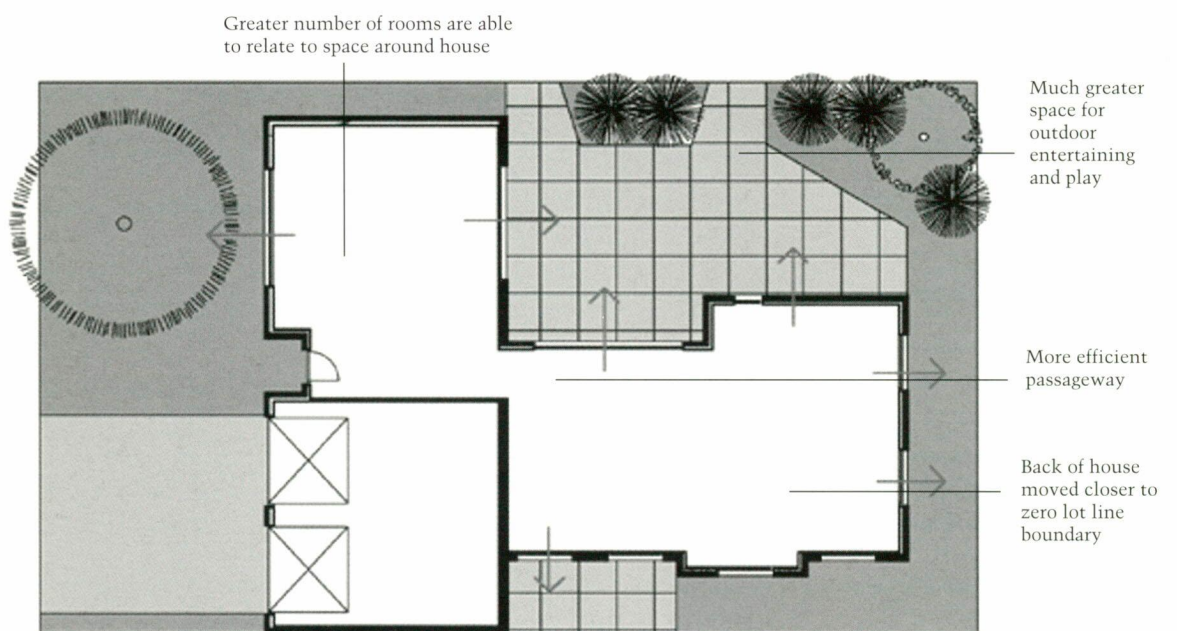


FIGURE 27. AN IMPROVEMENT TO THIS HOUSE DESIGN





PARKING

This is a common problem in many current houses leading to environments which are car and garage dominated, particularly at the heads of culs-de-sac (Figure 28).

Figure 29 and Figure 30 provide alternatives in which the garage and verandah together combine to make an attractive front facade.

The effect can be quite attractive and creates opportunities to personalise the house (Figure 31).

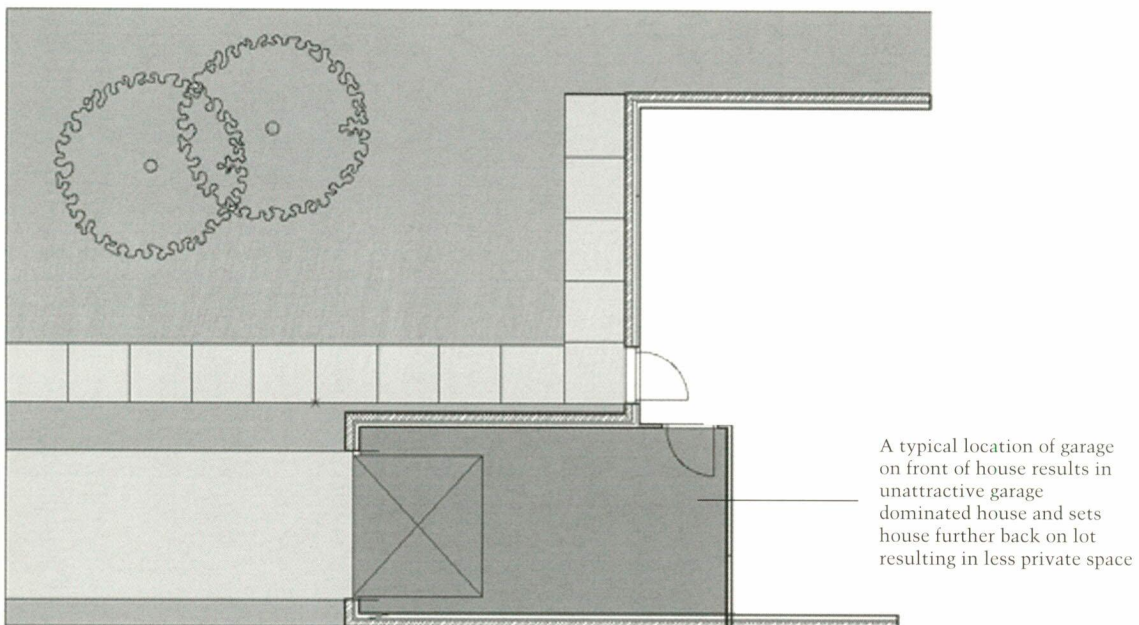
Another alternative is to have a free standing garage. This creates the garage as a separate entity in its own right and can create an attractive environment, particularly if the house is designed to take advantage of the opportunity which this provides for more glazing (Figure 32).

The siting of garages should not be confined to a location on the front of the houses but other locations should be considered as well (Figure 33 and 34).

The front of the house is able to make the principal streetscape statement and create effective functioning courtyard spaces (Figure 35).

Another alternative is to provide the access to the garage from the rear of the lot from a rear laneway. In this case the courtyard space is not alienated by its use for the car. Rear laneway situations are however not always possible but can provide many advantages in creating a streetscape which is not dominated by cars and garages (Figure 36).

FIGURE 28. A COMMON PROBLEM OF THE DOMINANCE OF THE GARAGE





PARKING

FIGURE 29. USING A VERANDAH TO REDUCE THE DOMINANCE OF A GARAGE

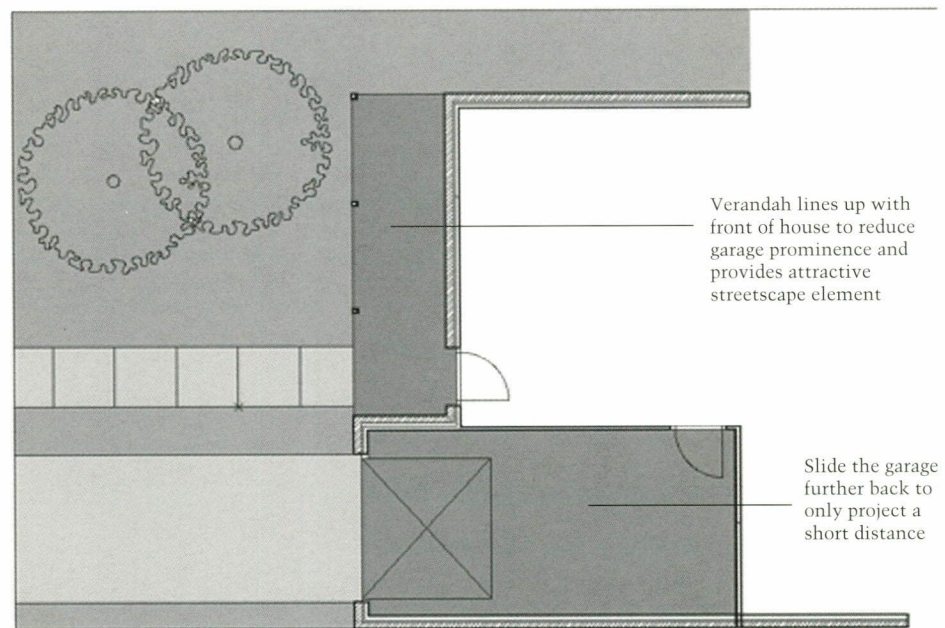
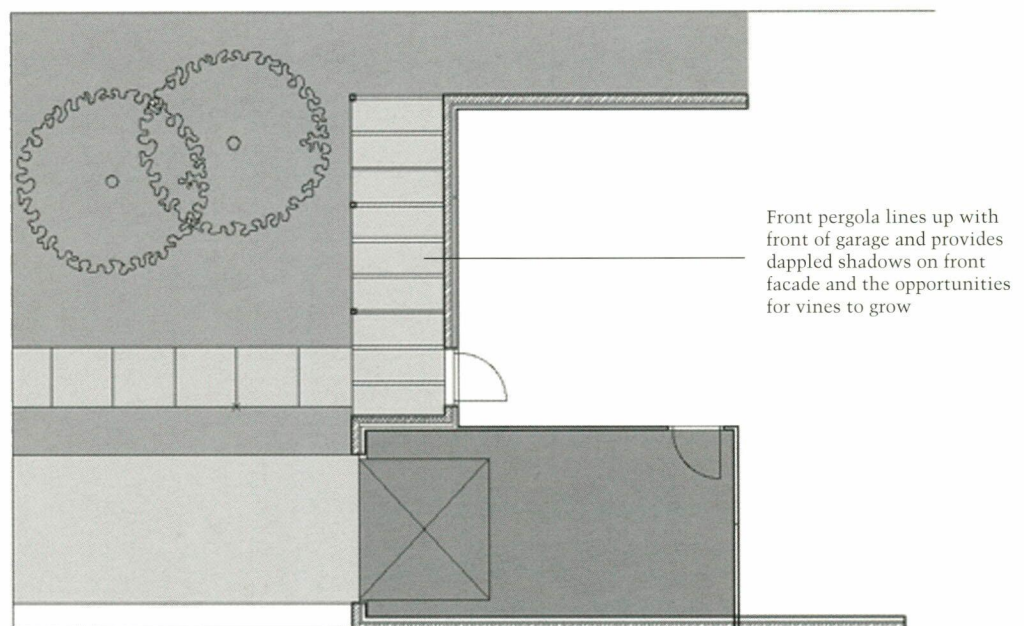


FIGURE 30. USING A PERGOLA TO REDUCE THE DOMINANCE OF A GARAGE





PARKING

FIGURE 31. THE PERGOLA ALSO PROVIDES OPPORTUNITIES TO PERSONALISE THE HOUSE

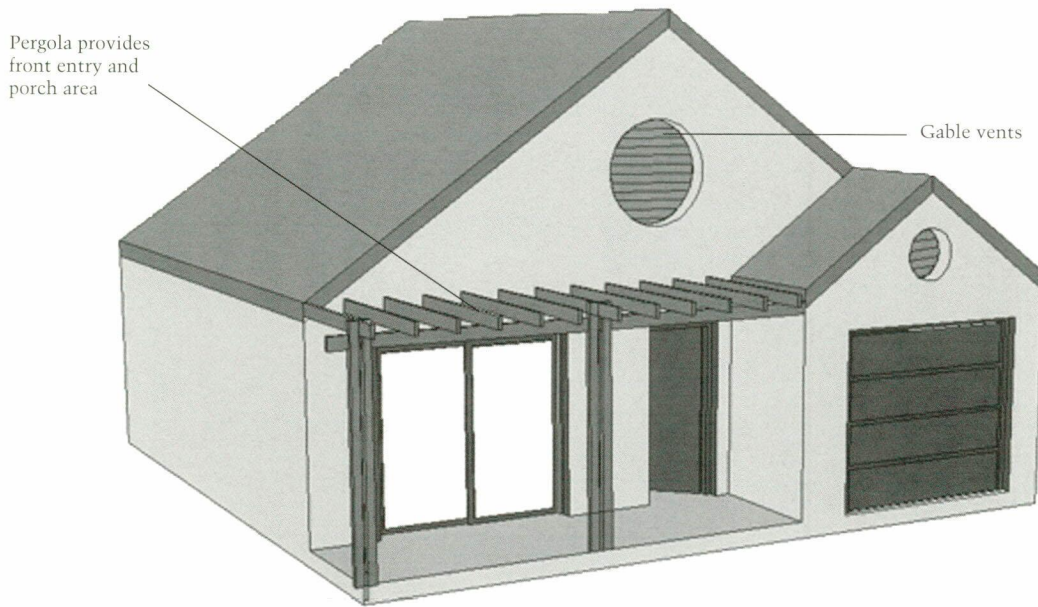
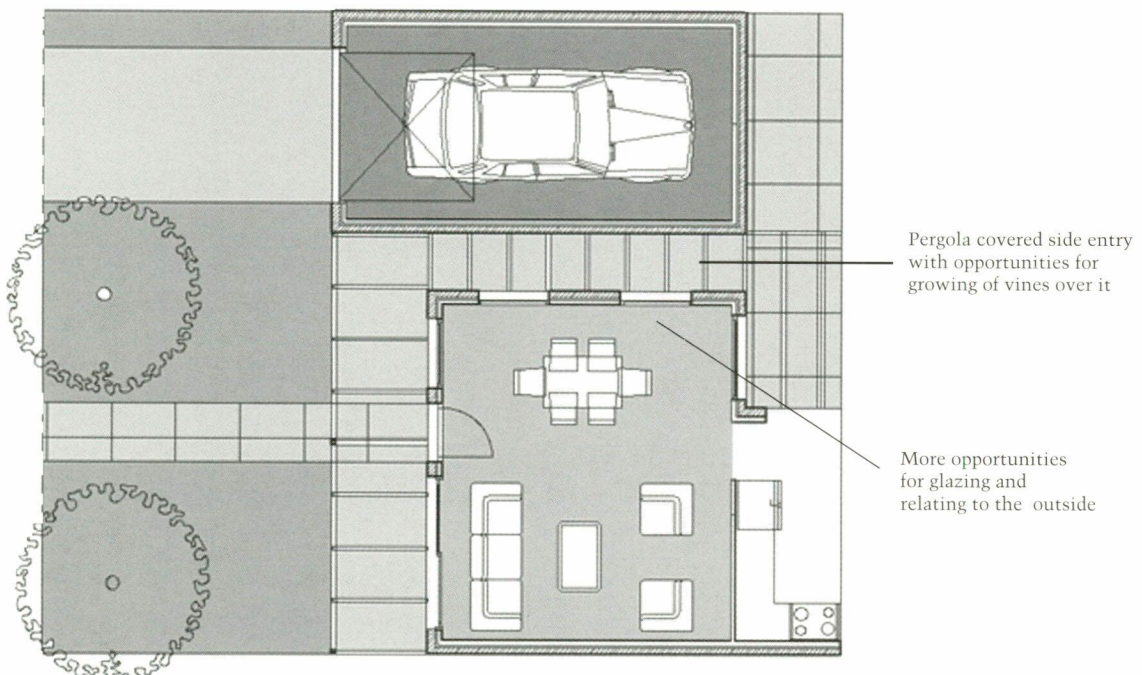


FIGURE 32. THE PERGOLA ALSO PROVIDES MORE OPPORTUNITIES FOR GLAZING





PARKING

FIGURE 33. ROOF FORMS CAN ALSO CREATE INTERESTING STREETSCAPE COMPOSITIONS

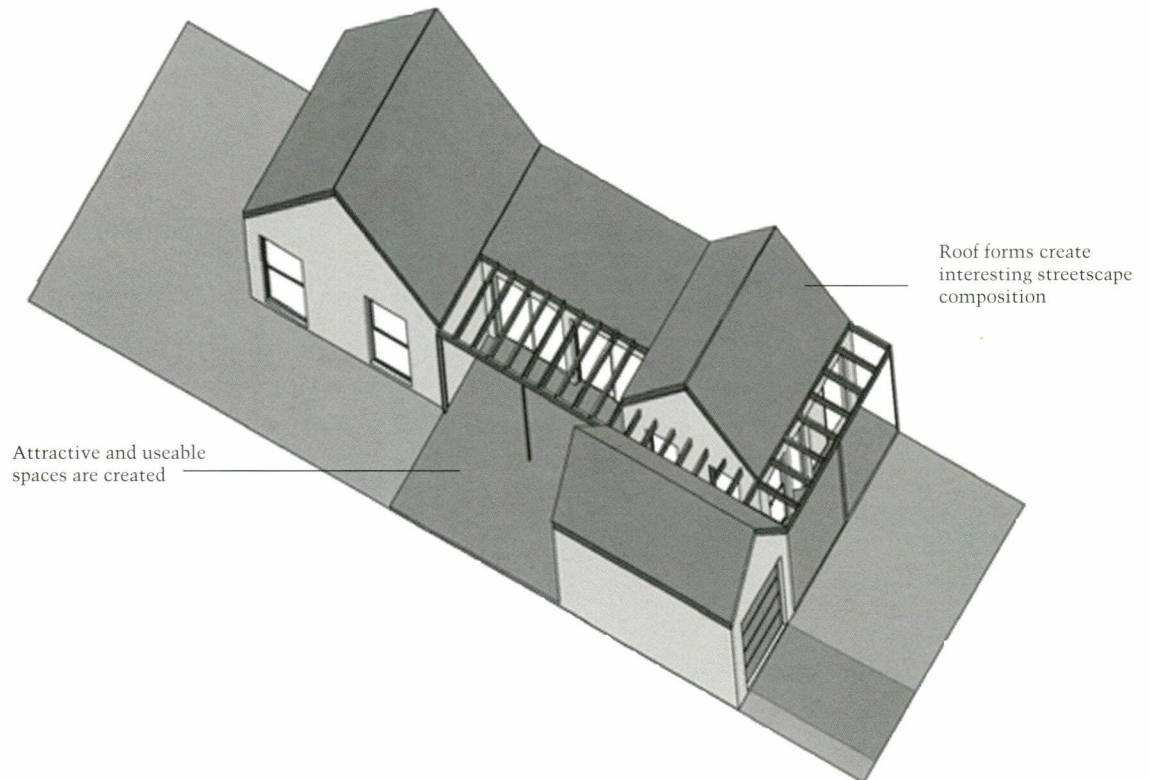
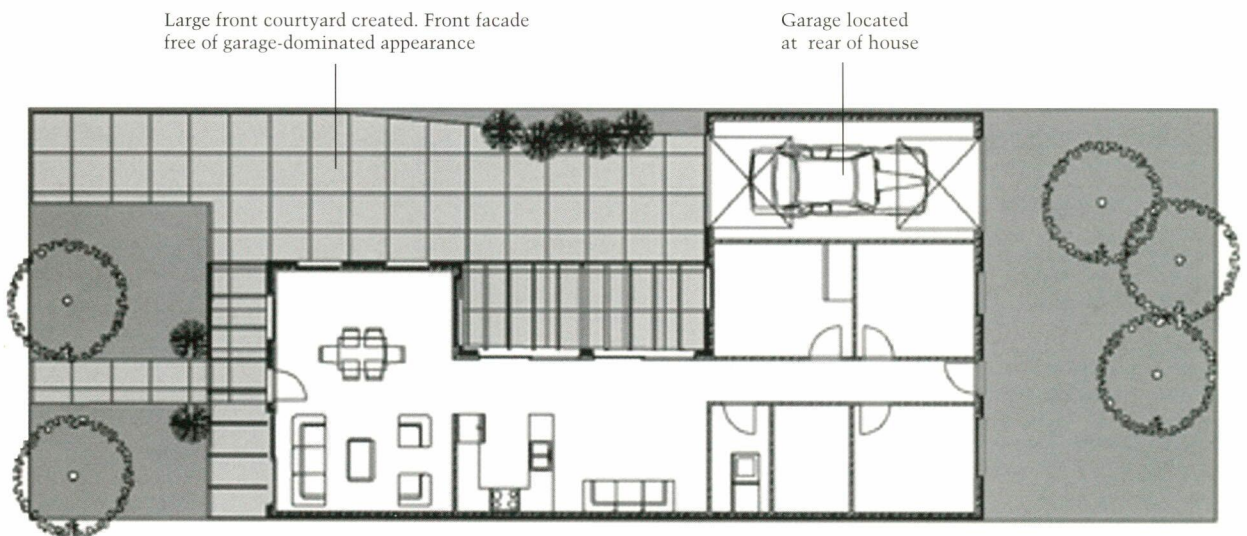


FIGURE 34. THE GARAGE DOES NOT NEED TO BE LOCATED AT THE FRONT OF THE HOUSE





PARKING

FIGURE 35. IN THIS DESIGN, THE FRONT OF THE HOUSE MAKES THE PRINCIPAL STREETSCAPE STATEMENT

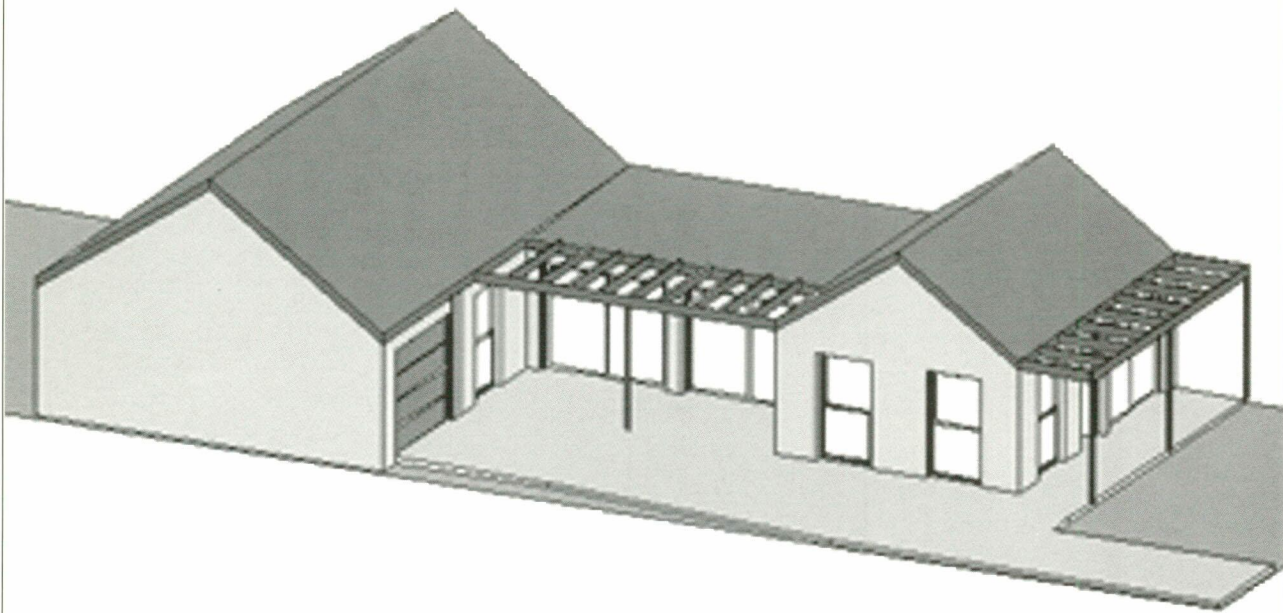
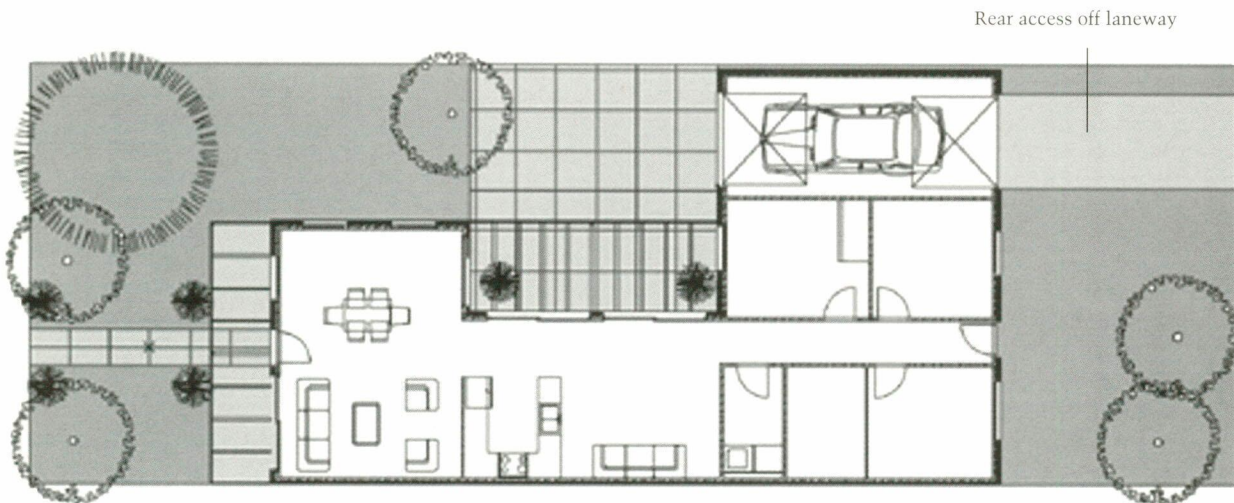


FIGURE 36. REAR ACCESS THROUGH A LANEWAY IS ANOTHER ALTERNATIVE





PUBLIC AREAS

It is important that design techniques are used in courtyard housing to ensure that there is the maximum space efficiency as well as creation of the perception of space. One of the techniques, already mentioned, is the use of outdoor space and a relationship to it to create the impression of greater internal space. Another is the combination of rooms to create a greater internal volume of space than would be possible with separate rooms.

One such situation is the combination of lounge and living rooms and their respective passageways, particularly when opening out onto courtyard spaces (Figure 37).

The alternative is to combine the above functions and to gain the effective and perceptual space that results (Figure 38).

In the above case the garage is also placed on the zero lot line boundary (southern side) and this provides the lounge and dining room with the benefit of sunlight through a northern orientation as the orientation to the courtyard and front spaces. Passageway spaces are incorporated in the overall room thereby reducing the area devoted to them and gaining

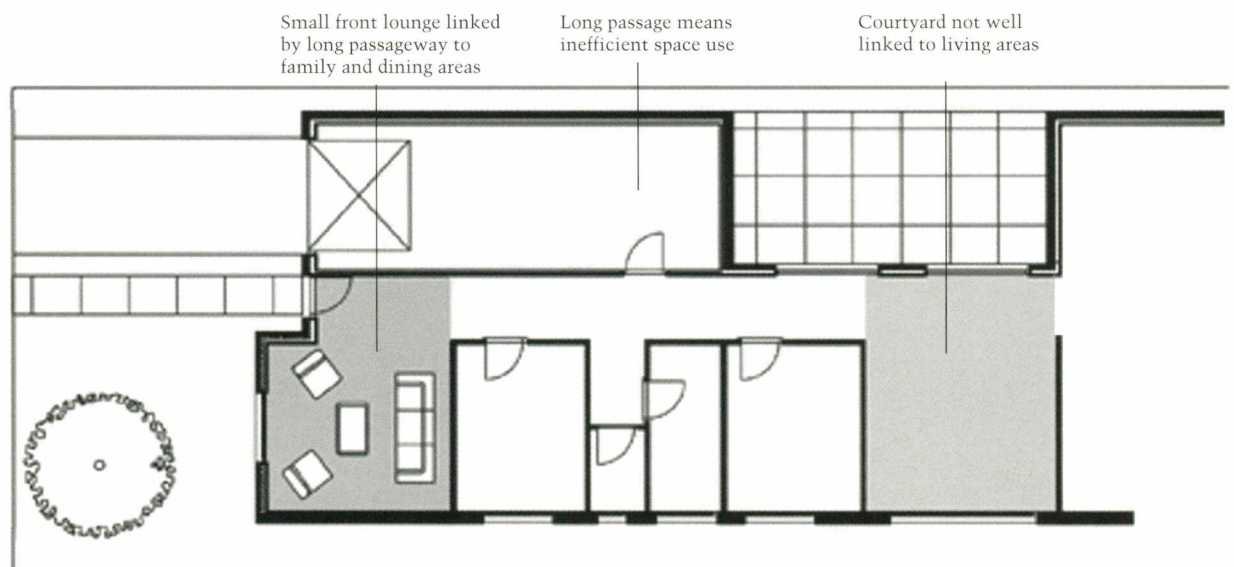
the additional visual and real space. However in some cases where dining and lounge areas have been combined this may not have been exploited to the fullest advantage

Figure 39 is a typical way some of the lounge/dining rooms are arranged. This has the penalty of the garage potentially being on the northern side, but particularly of a minimal relationship to the courtyard and an enclosed feeling which is created. The alternative is to slide the garage to the southern boundary and turn the axis of the rooms by 90° thereby improving the relationships (Figure 40).

The design in Figure 41 allows the combined lounge/dining room to align along the main axis of the house while still maintaining a good relationship with the outside while relating to the external courtyard on the front.

The private areas need not always be on the front of the houses to be effectively placed. The design in Figure 42 creates an orientation to the rear of the allotment while providing very generous internal spaces out of a very small space efficient design.

FIGURE 37. LOUNGE AND LIVING ROOMS ARE WELL CONNECTED TO THE COURTYARD





PUBLIC AREAS

FIGURE 38. AN ALTERNATIVE COMBINATION OF LOUNGE AND LIVING ROOMS CREATES INCREASED PERCEPTUAL SPACE

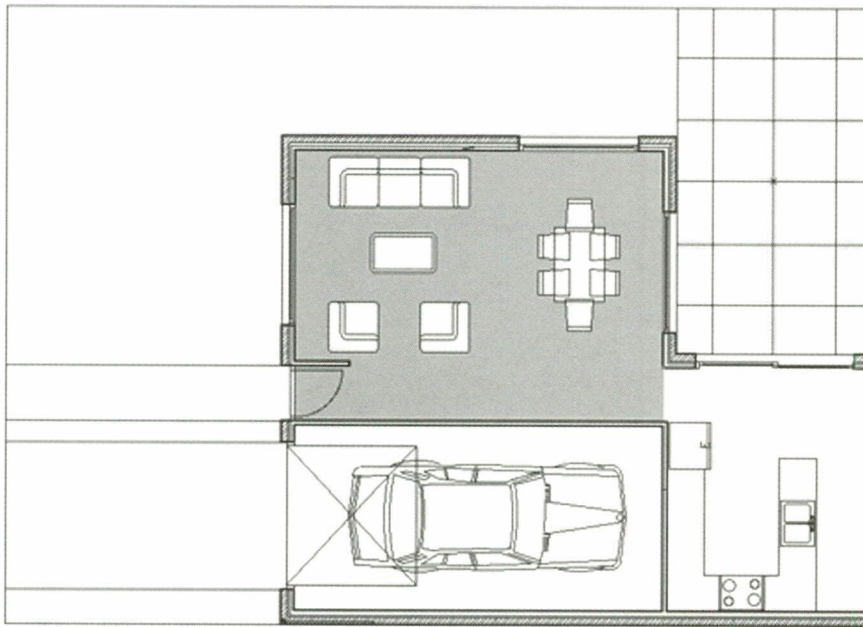
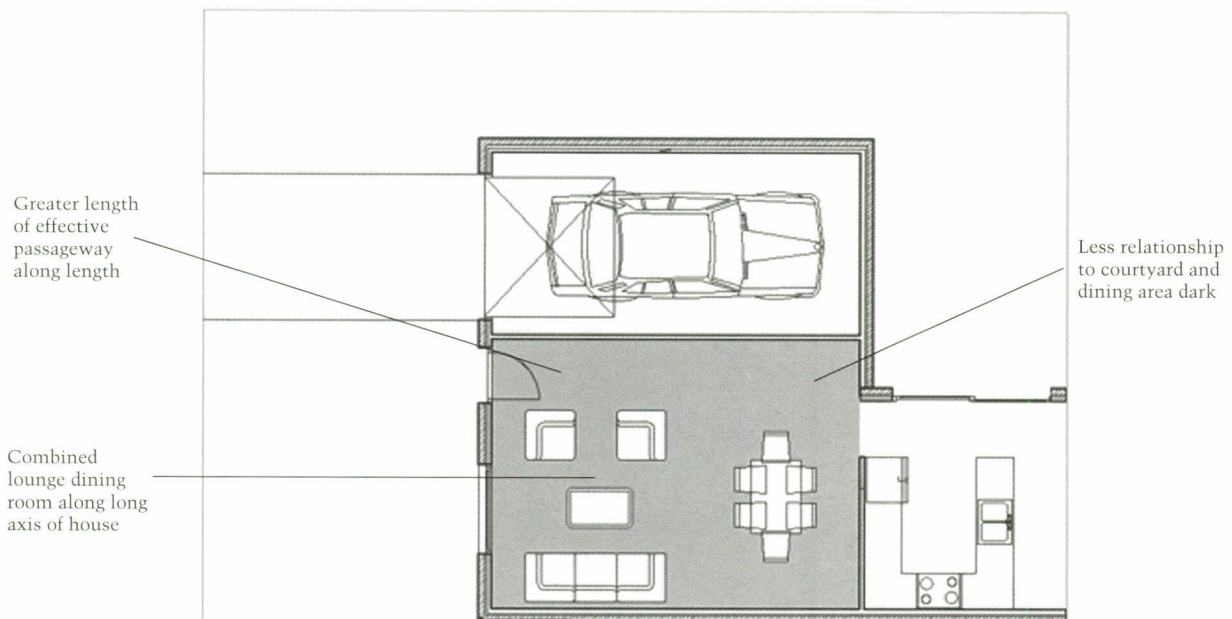


FIGURE 39. A TYPICAL LAYOUT FOR LOUNGE AND LIVING ROOMS





PUBLIC AREAS

FIGURE 40. AN IMPROVED ORIENTATION FOR LOUNGE AND LIVING ROOM

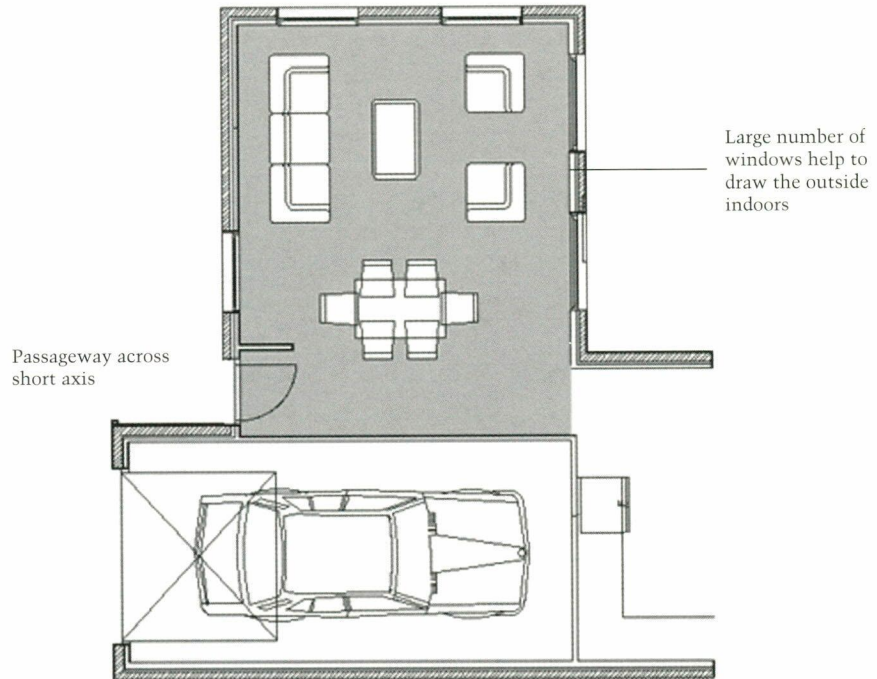
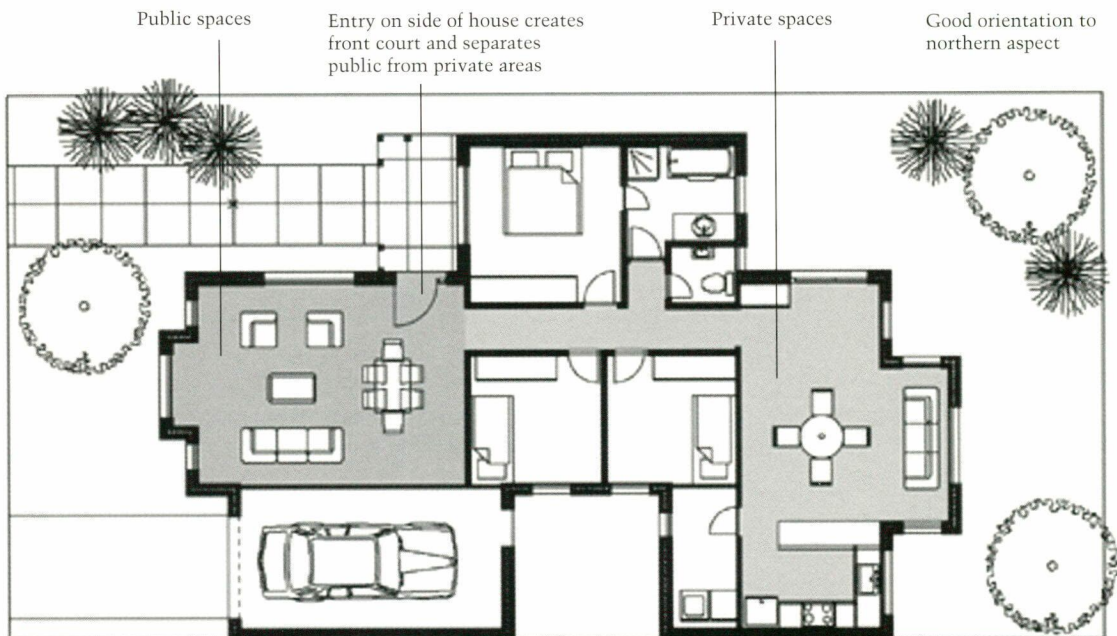


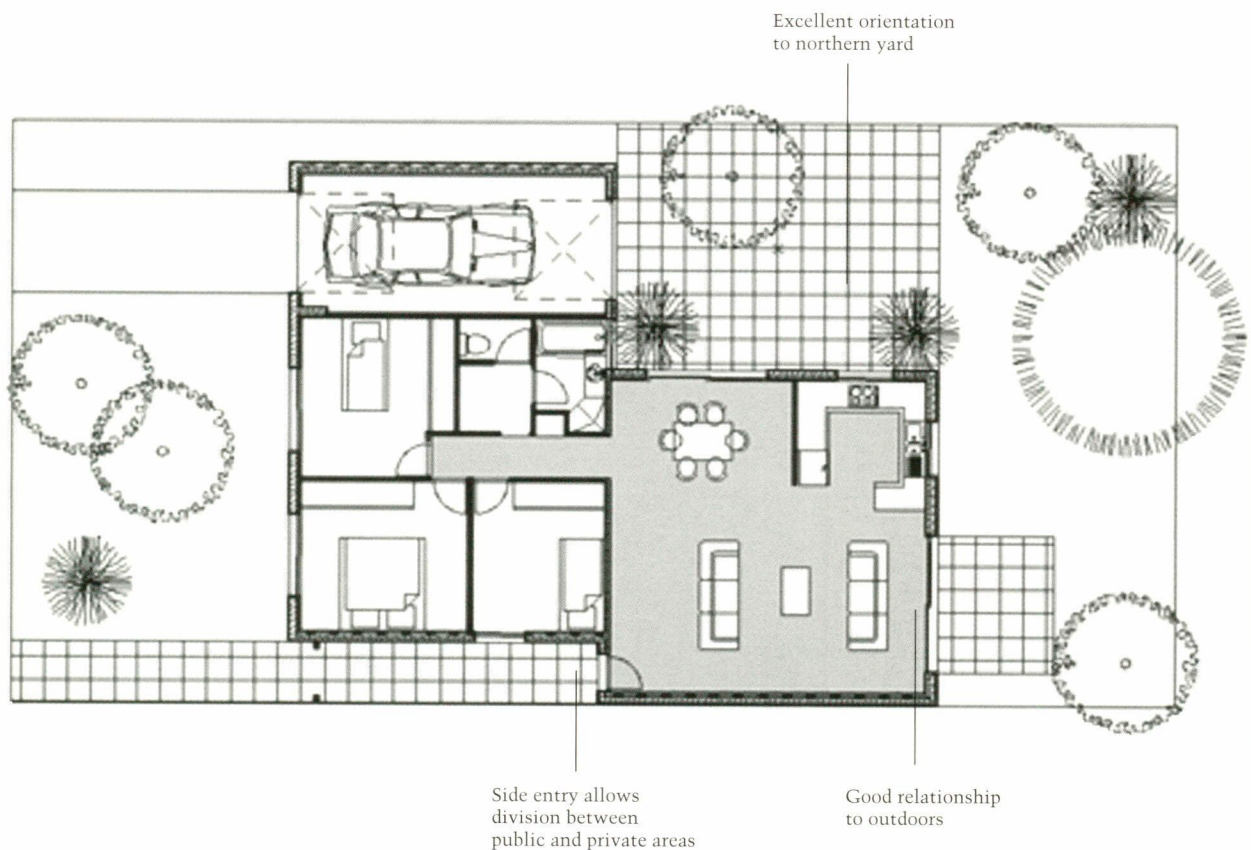
FIGURE 41. ONE DESIGN THAT ALIGNS THE LOUNGE/DINING ROOM TO THE MAIN AXIS OF THE HOUSE





PUBLIC AREAS

FIGURE 42. A DESIGN WITH AN ORIENTATION TO THE REAR OF THE HOUSE





PRIVATE AREAS

Often the zoning of the functions of the house are not well handled such as in the example in Figure 43.

It is far better to keep the various public and private functions separate as far as possible as this makes for a better functioning house (Figure 44).

Sometimes the family area is not well designed and becomes effectively a wide passageway making the room difficult to furnish and unsatisfactory to use (Figure 45).

It is better to make the effective passageway run along one side of the room. This creates a more useable space which is easier to furnish and can still operate well with the kitchen (Figure 46).

FIGURE 44. AN IMPROVED ORIENTATION TO HOUSE DESIGN

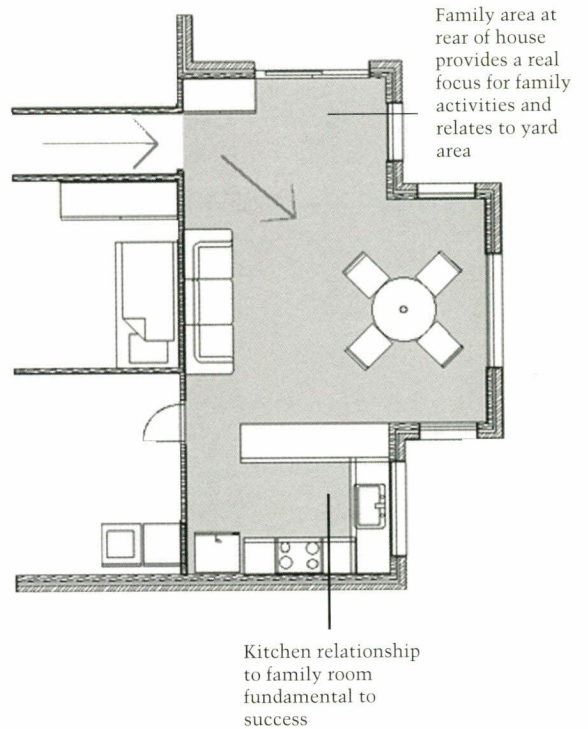
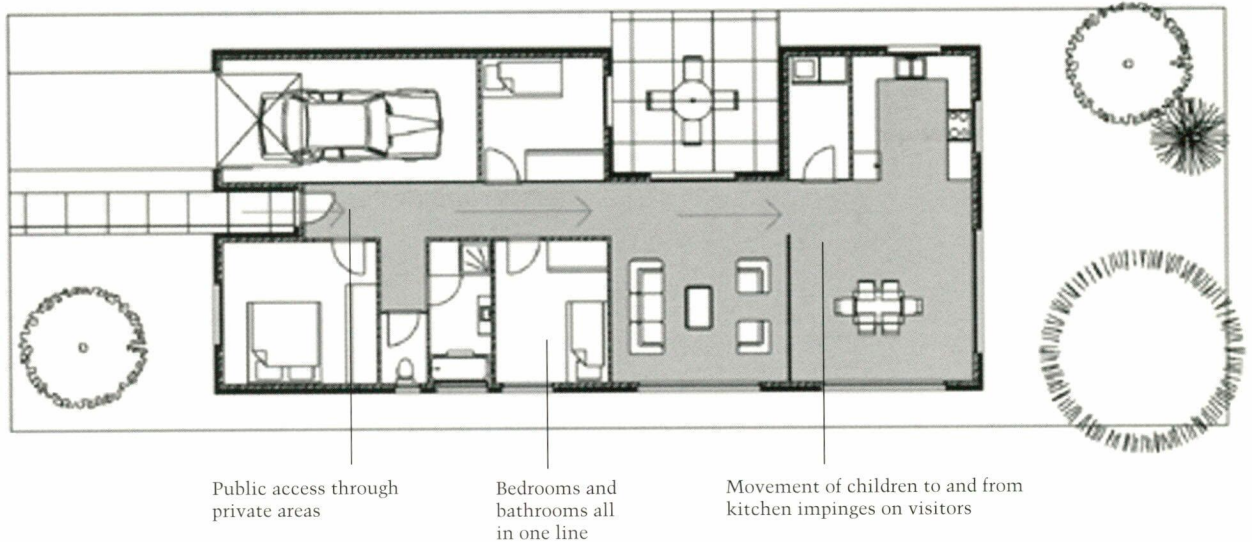


FIGURE 43. A DESIGN IN WHICH THE ZONING FOR A HOUSE IS NOT ADDRESSED WELL





PRIVATE AREAS

FIGURE 45. THE FAMILY AREA IS NOT WELL DESIGNED

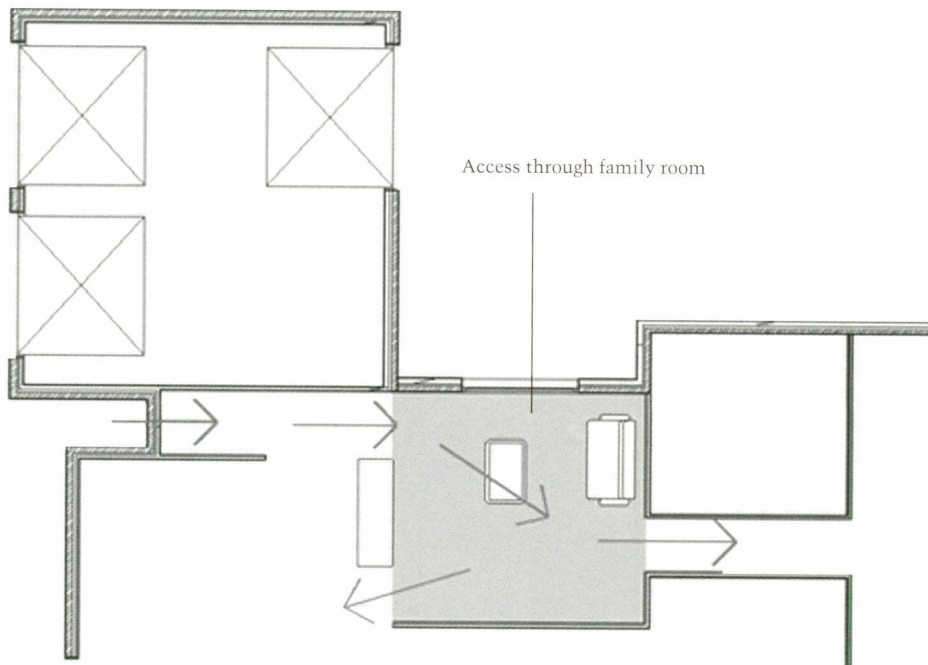
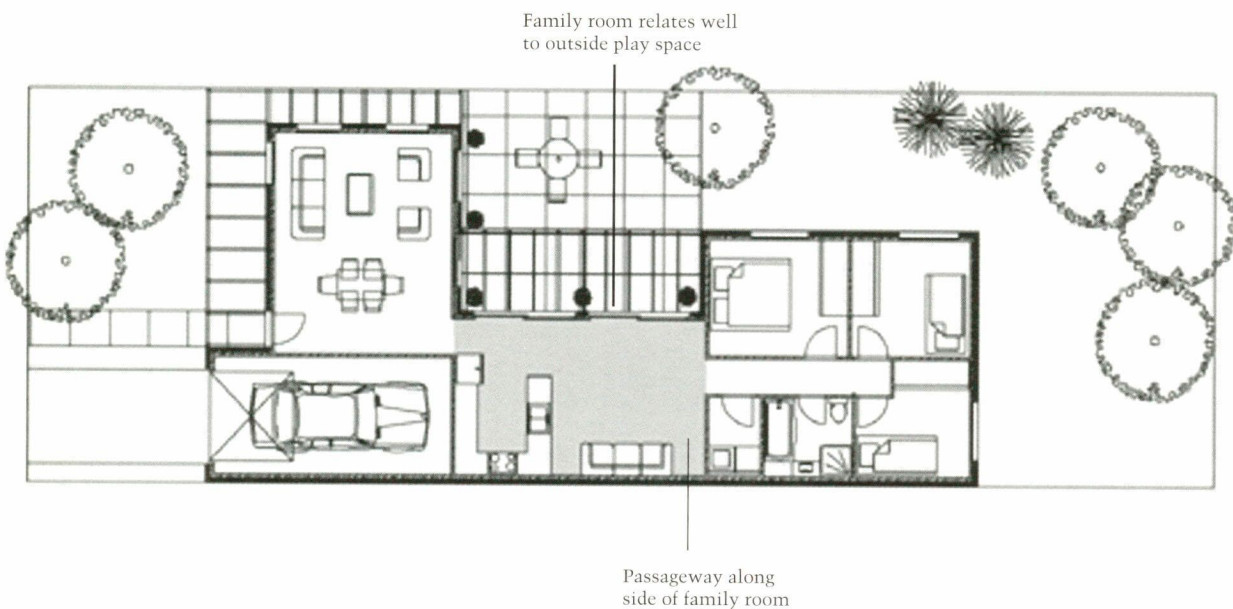


FIGURE 46. AN IMPROVEMENT WITH THE PASSAGEWAY ALONG ONE SIDE OF THE ROOM





BEDROOMS

It is far better to cluster the bedrooms particularly for the housing aimed at families with young children (Figure 47). The bedroom zone can then be kept separate from the other zones meaning more privacy and less disturbance of small children (Figure 48).

FIGURE 47. THE ORIENTATION OF BEDROOMS IS IMPORTANT TO ALLOW FOR PRIVACY

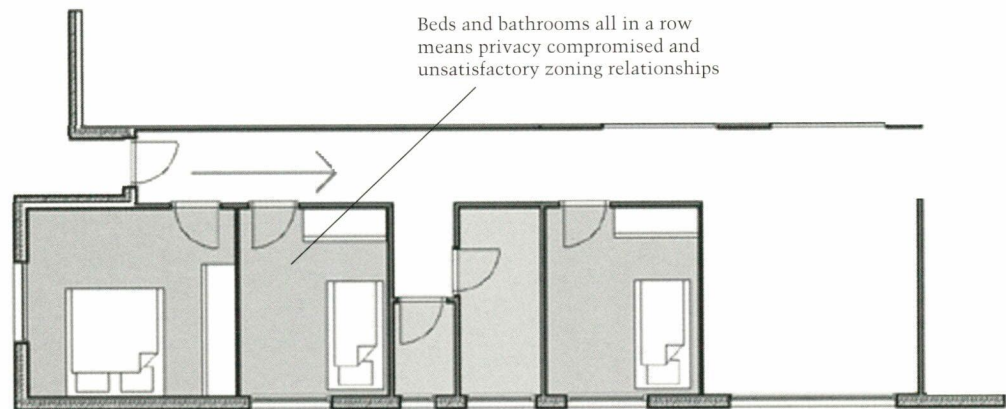
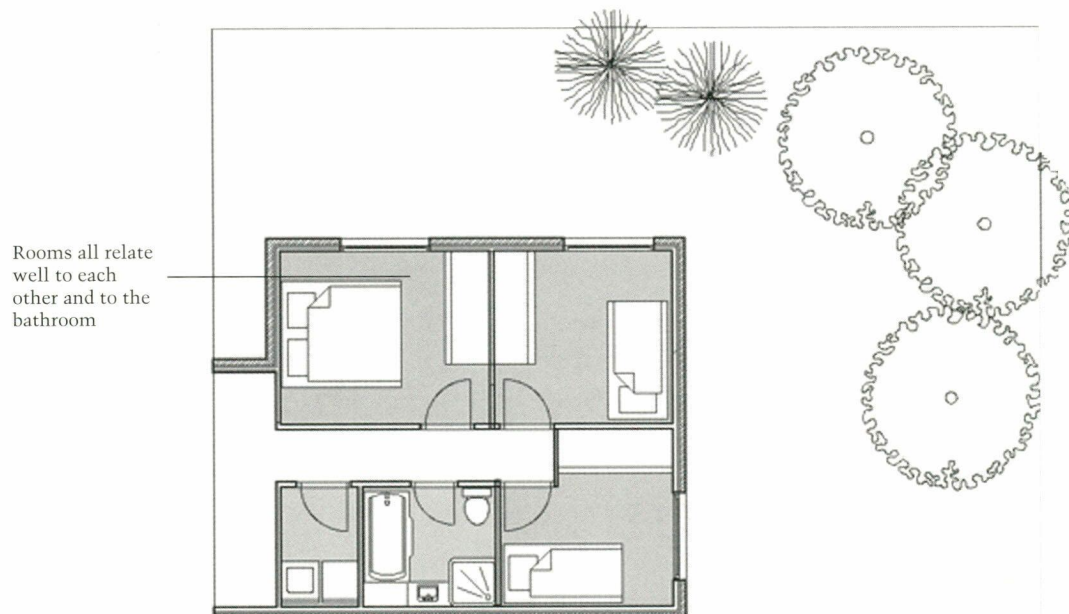


FIGURE 48. AN IMPROVED DESIGN IN WHICH THE BEDROOMS RELATE WELL TO EACH OTHER



Conceptual Designs

The following are a series of courtyard designs which have been produced to provide examples of how to put the guidelines into effect. All the designs have the courtyard as their principal focus and all attempt to relate the spaces outdoors with the internal spaces. As a result they should feel light and airy and provide a sense of space which belies their size.

Designs have been produced for a range of situations including:

- 10 m wide allotments with single storey houses
- 10 m wide allotments with 1 1/2 storey houses which provide a generous indoor space within a very compact form
- 10 m wide allotments with two storey houses which have good opportunities for siting for good solar access, something often problematical in this type of housing
- 12.5 m wide allotments with compact single storey courtyard houses in a very compact form, but emphasising the creation of space within a small floorspace
- 15 m wide allotments with generous spaces and courtyards which relate well to the external spaces.

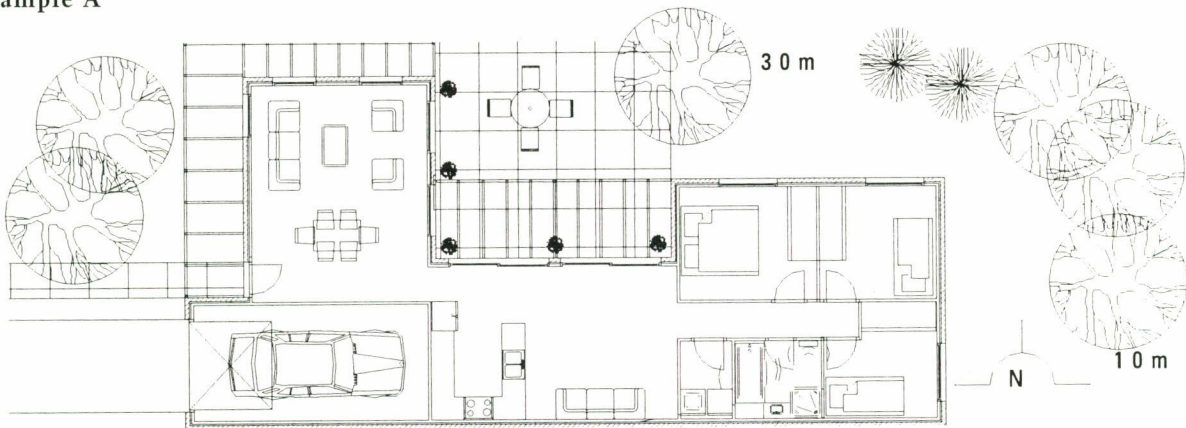
All the designs are suitable for use on north-south as well as east-west allotments and they demonstrate that considerable flexibility can be achieved with well designed floorplans. The potential orientations are indicated on the plans to act as a guide.

These designs are intended to be thought provoking and to provide the source of new ideas. All will be suitable for use within the settings which have been described. The two storey houses in particular will provide a good definition of space when used as a cluster around a small open space.

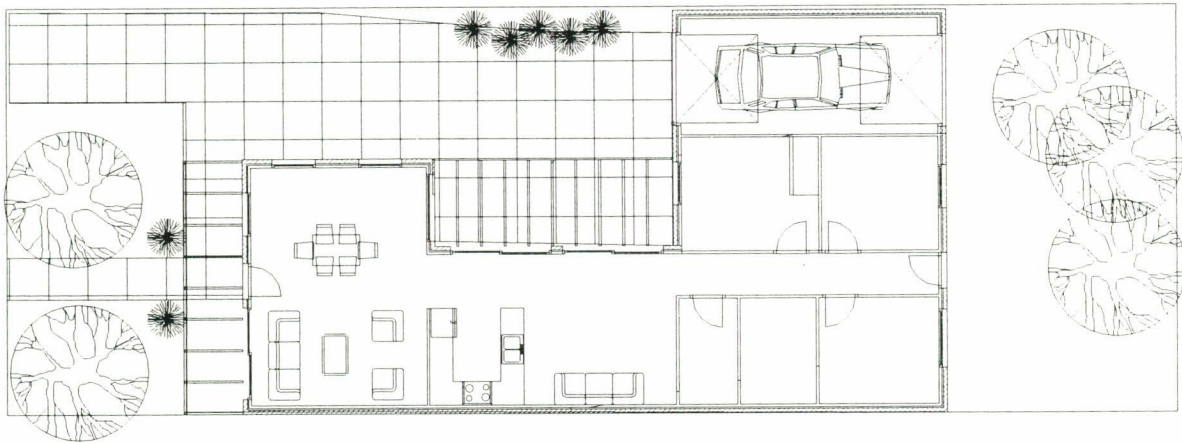


FIGURE 49. COURTYARD HOUSE WITH 10 M WIDE FRONTAGE

Example A



Example B



Example C

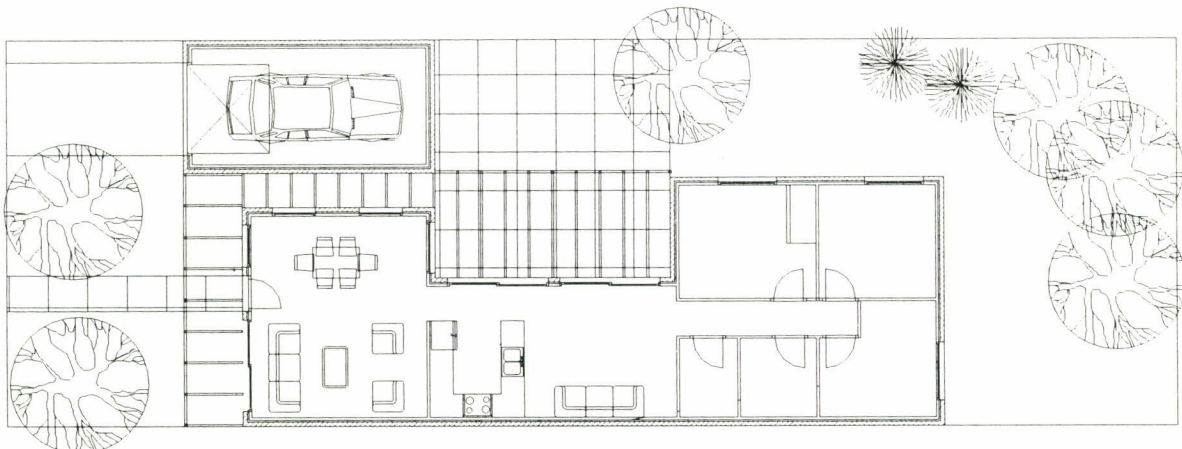
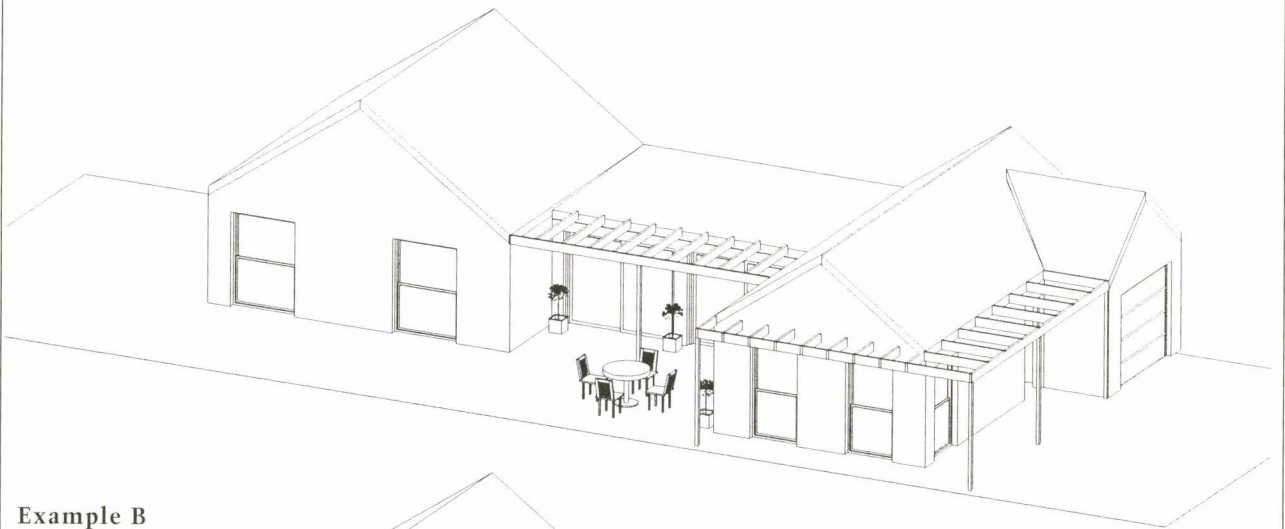


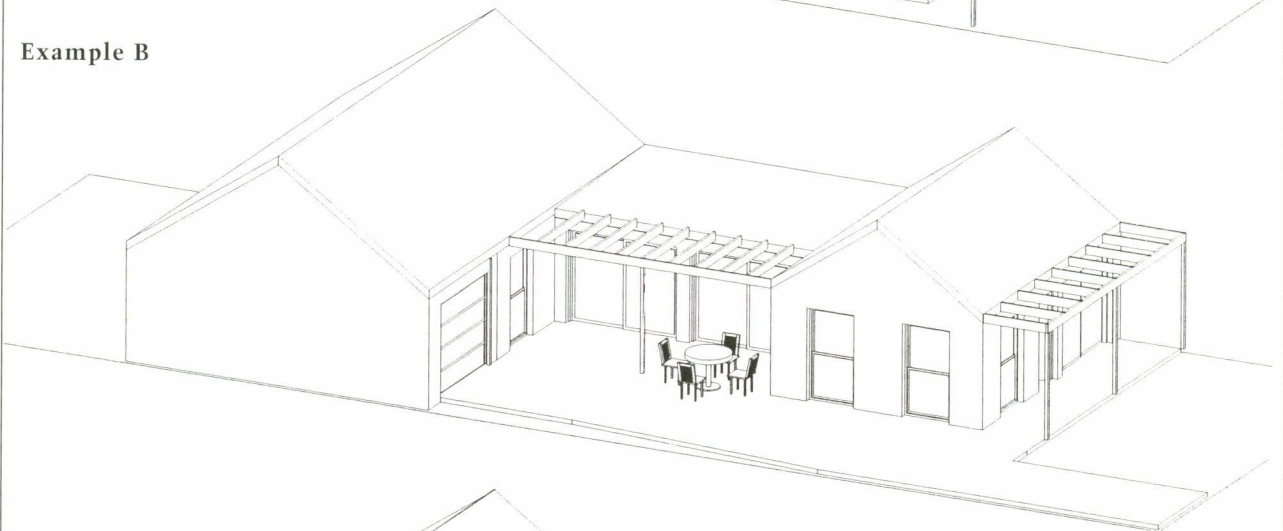


FIGURE 49. COURTYARD HOUSE WITH 10 M WIDE FRONTAGE (CONTINUED)

Example A



Example B



Example C

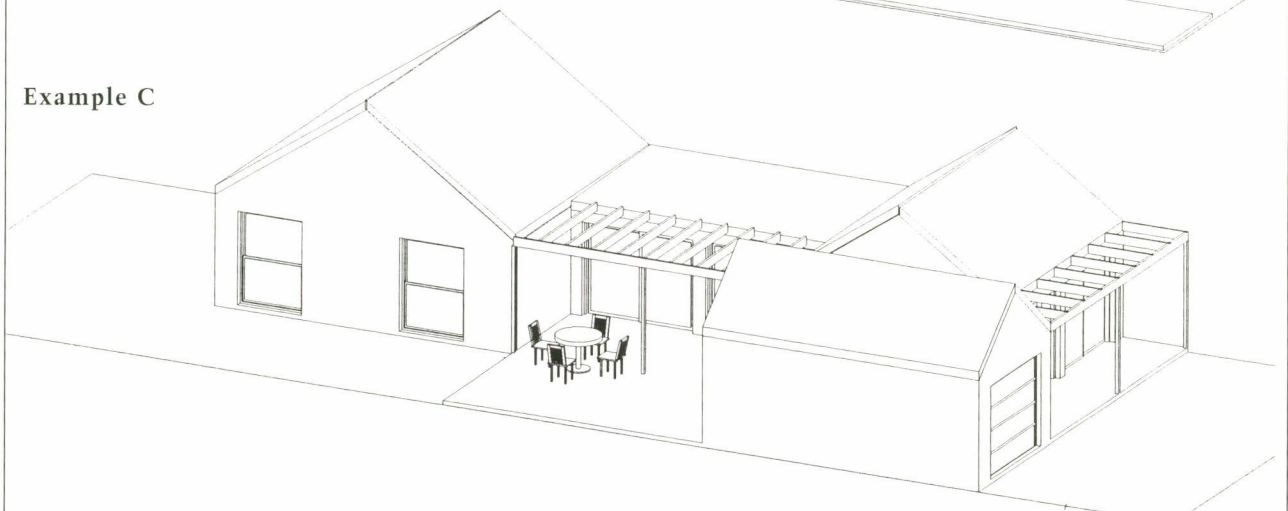
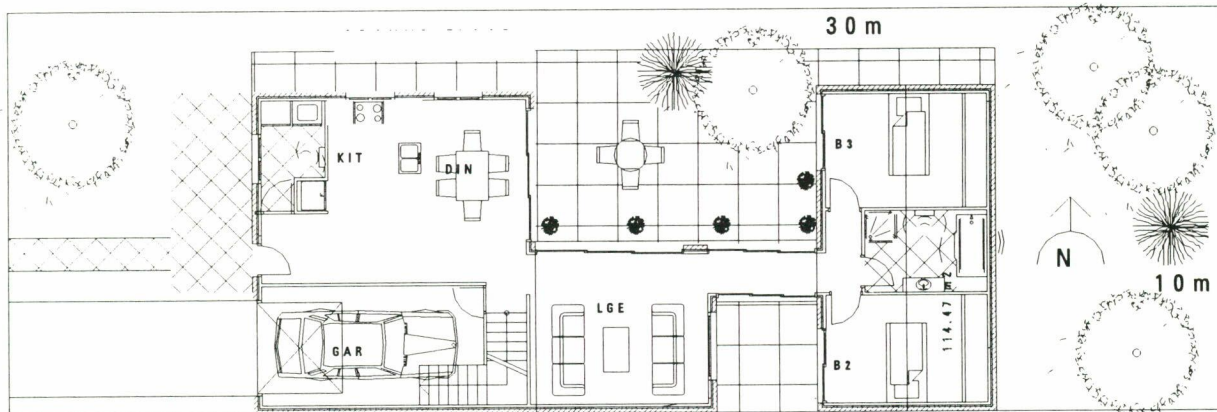




FIGURE 50. COURTYARD HOUSE WITH 10 M WIDE FRONTAGE - 1 1/2 STOREY

GROUND FLOOR



FIRST FLOOR

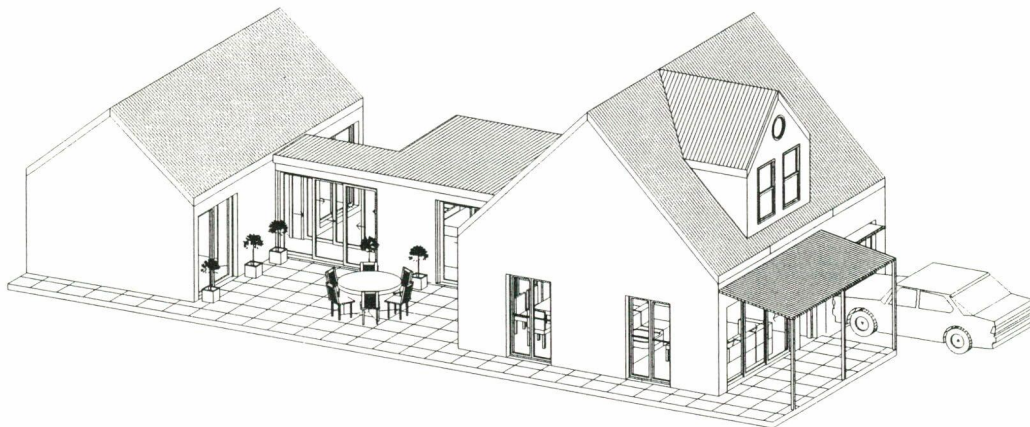
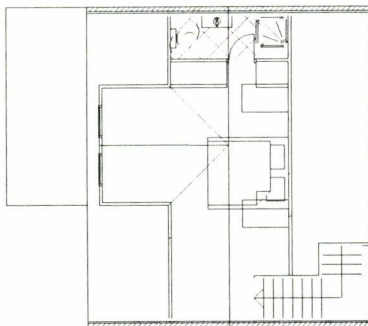
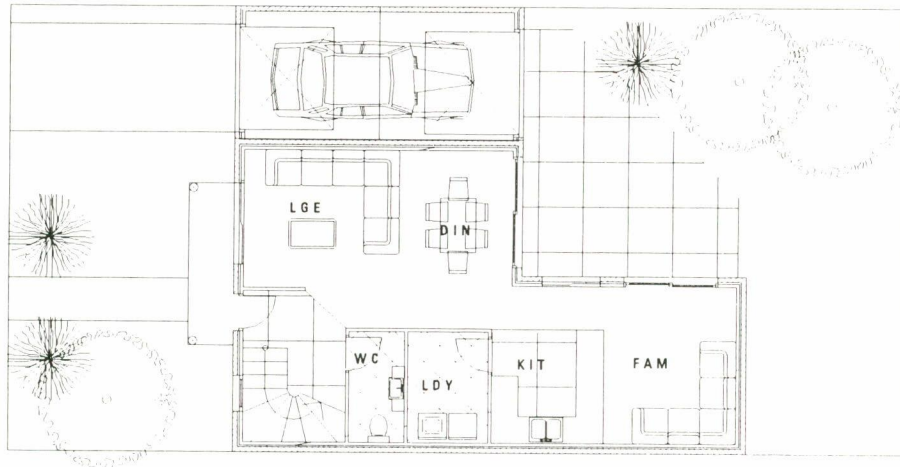




FIGURE 51. COURTYARD HOUSE WITH 10 M WIDE FRONTAGE – 2 STOREY

GROUND FLOOR



FIRST FLOOR

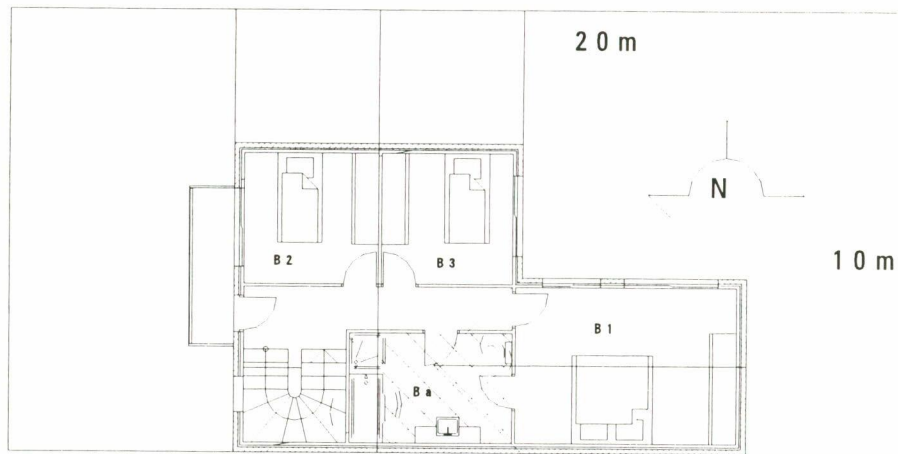




FIGURE 52. COURTYARD HOUSE WITH 12.5 M WIDE FRONTAGE

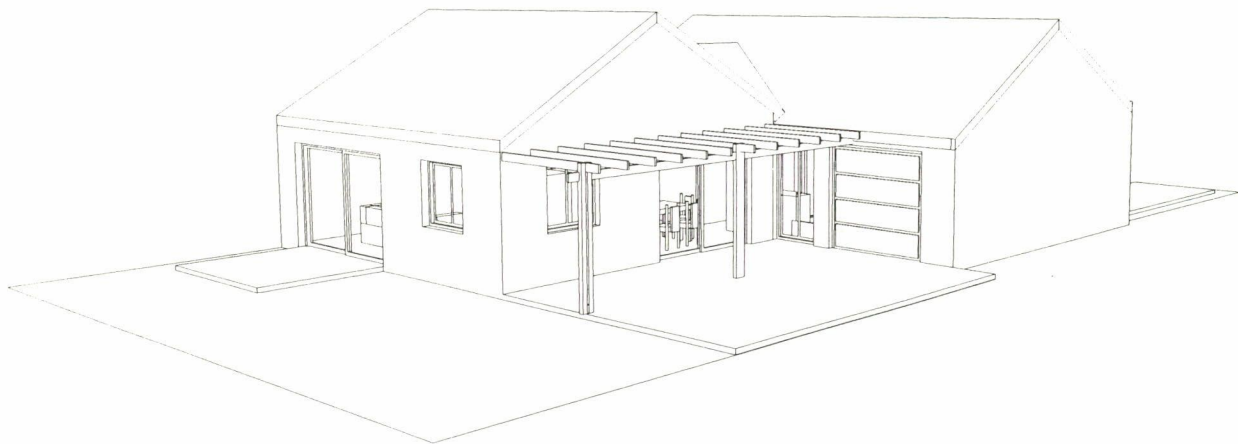
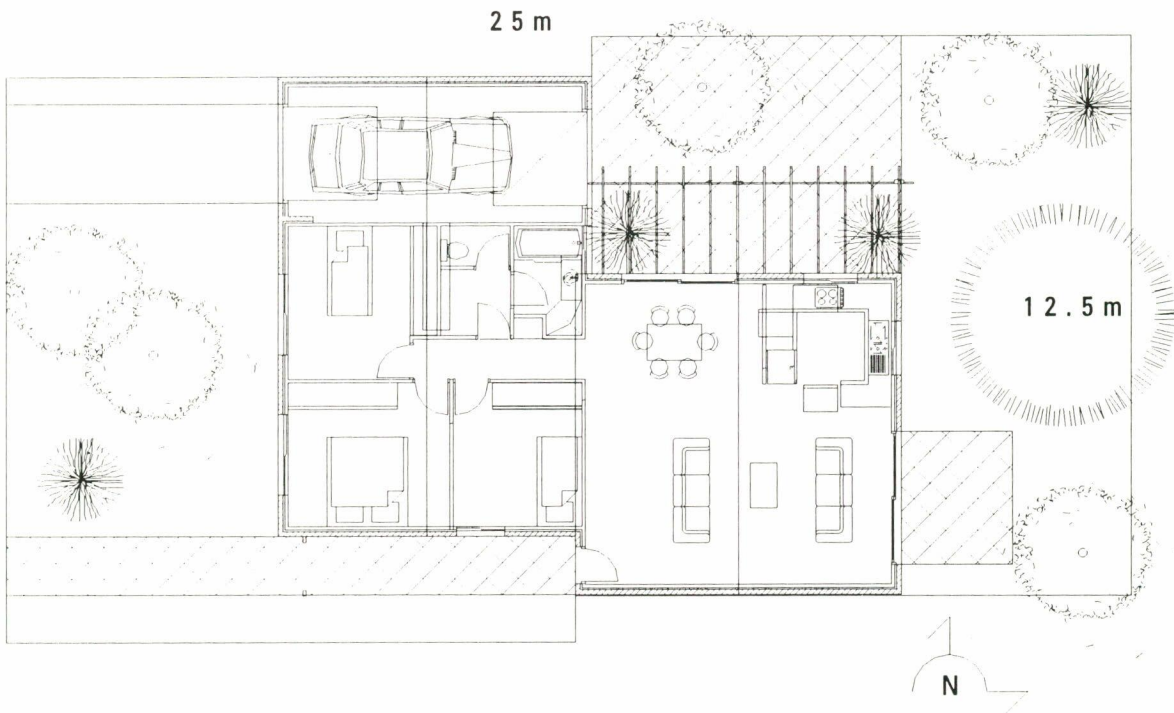
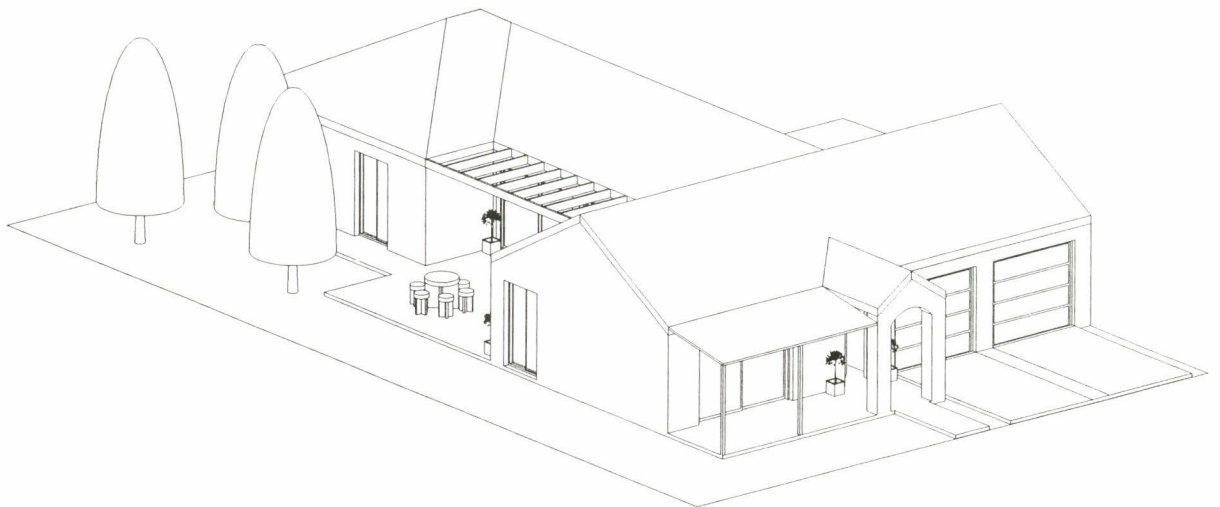
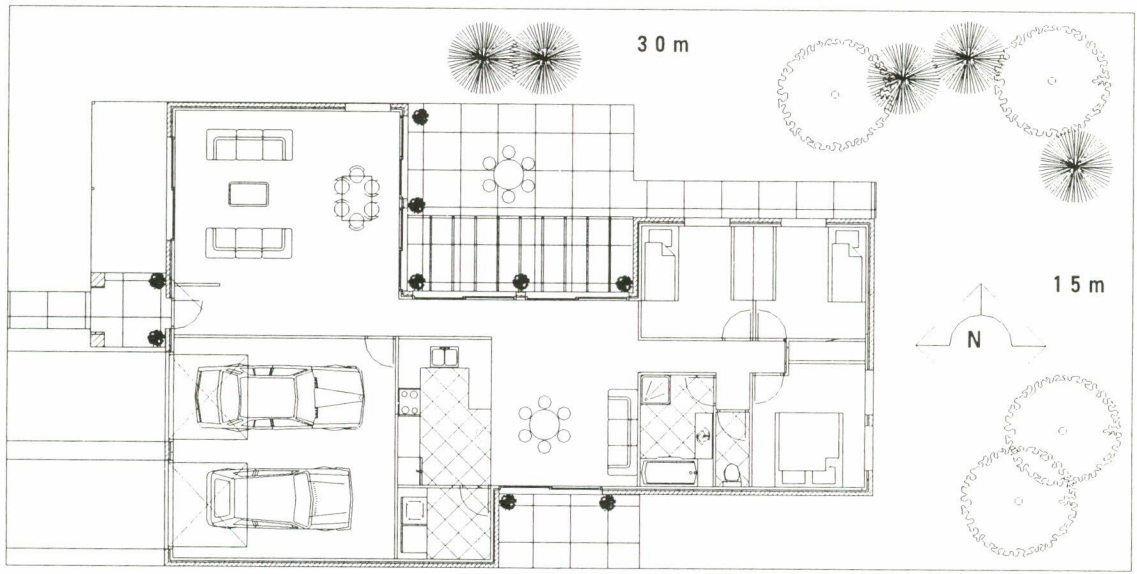




FIGURE 53. COURTYARD HOUSE WITH 15 M WIDE FRONTAGE



Guidelines

The greater use of courtyard housing is encouraged by the this document. Its intention is to introduce further ideas for builders and developers to use when planning their houses. This will encourage more widespread acceptance of this housing form. This can, however, only be successfully undertaken with a product which will appeal to the consumer as attractive, well designed and cost effective housing.

Landcom will ensure that the very important preconditions of the site planning and layout are undertaken in a way which will provide the courtyard housing with the setting which will enhance the product. Courtyard houses have therefore been located in settings where they have the advantage of being near open space, community facilities and public transportation. In general, they are clustered around parks which are landscaped and have play equipment and near public transportation. It is now up to the builders and developers to provide the products which take the full advantage of the settings.

APPROVAL PROCEDURE

The Precinct Design Schedule is the principal document which provides information for purchasers. In addition Neighbourhood Design Guidelines have been prepared to assist lot purchasers in interpreting the requirements. Variations to the requirements of the Precinct Design Schedule may be achieved, but only with the written consent of the local Council. Prior to issuing written consent Council will ensure that all home plans and any proposed modifications have been considered by the Estate Design Panel.

The Panel includes representatives of Landcom, the local Council and an independent architect. All plans must first be endorsed by the local Estate Design Panel. Three copies of house plans, including a schedule of paint colours and



building materials should be sent to the Regional Manager at the Landcom Office prior to lodgement with Council. No charge is applicable and response will generally be within 7 days. This process will facilitate earlier consideration of Building Application by Council.

REQUIREMENTS

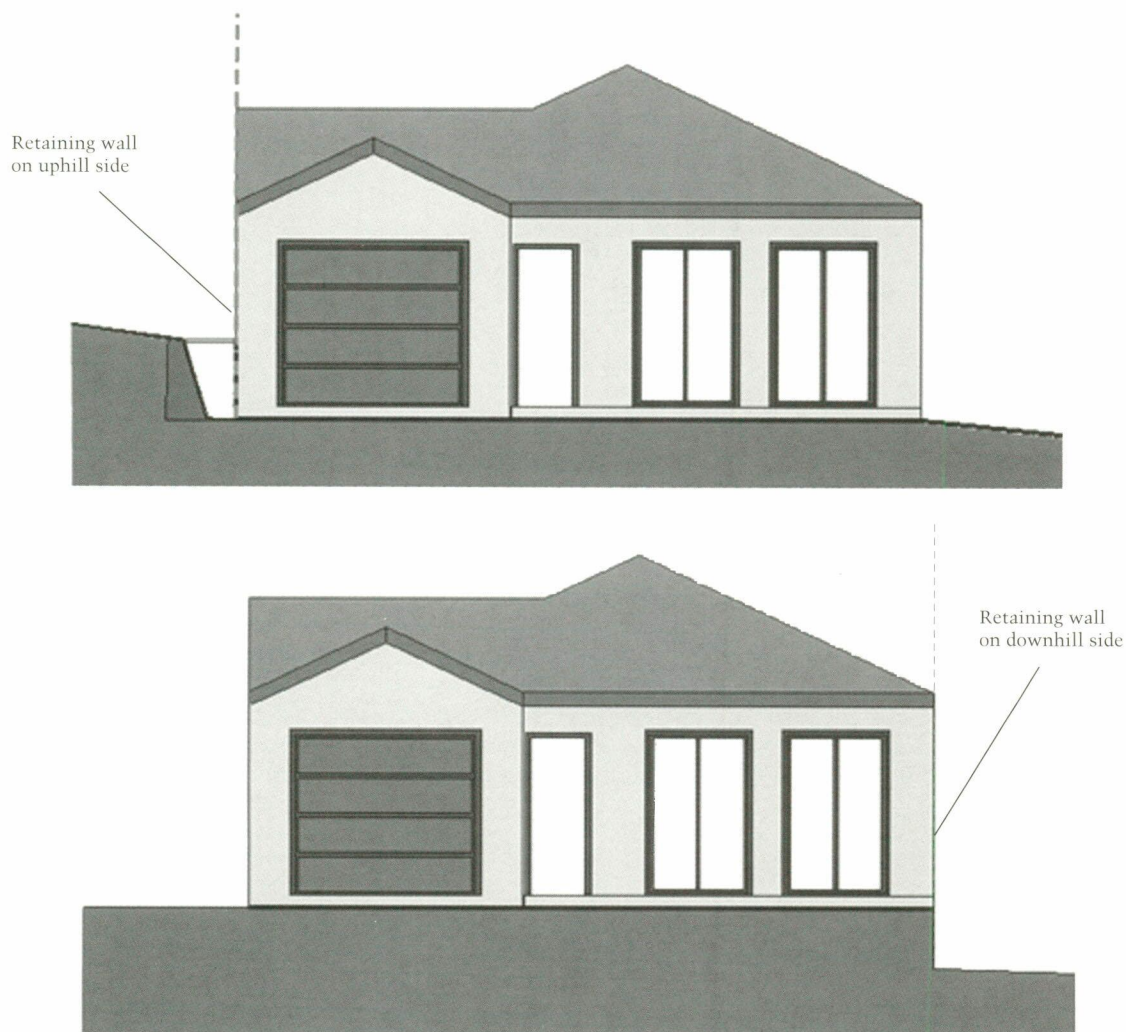
Desired Character

The desired character is of cottage scaled houses creating a village form clustered around local parks and facilities the character should also be responsive to the attributes of the location of the

site. The cottages may be of single or double storey height but set in a streetscape where their individual variation contributes interest and vitality within a cohesive whole.

The houses are to be designed to maximise orientation to sunlight while providing high levels of privacy. The overall forms encouraged are those which provide very good orientation to the external spaces around the buildings and have a logical plan and layout which enables them to function well.

FIGURE 54. SITING SHOULD ACCOMMODATE NATURAL SLOPE OF LAND





Slope of Land

Houses and garages should be sited and designed to take advantage of the natural slope conditions and the use of split level designs which follow the fall of the land. This avoids ugly and expensive earthworks and large retaining walls which scar the natural landscape (Figure 54).

Building Siting

The building must be contained within the building envelope specified for each house lot including compliance with Council setbacks and height requirements (Figure 55).

The only minimum dimensions stipulated within the envelope are for the front setbacks from the frontage of the lots to the street. The reason for this is to provide accommodation for an off street car space and to provide a reasonable level of privacy for the occupants of the house.

The front setback is therefore a 3.5 m minimum dimension from the front of the house is preferable while 5.5 m is a minimum dimension for the front of the garage to the street.

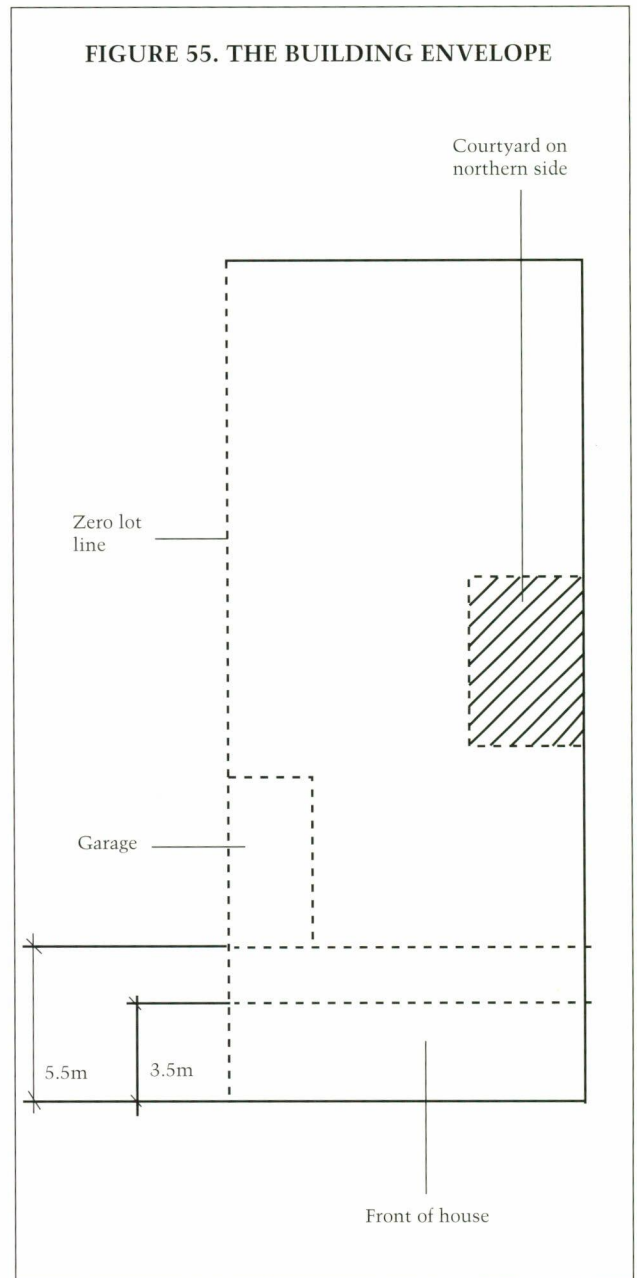
The envelope is graphically shown in Figure 55. It should be noted, however that in certain situations these dimensions may have to change where there are certain pre-existing constraints. Where this occurs the relevant dimensions will be shown in the Precinct Design Schedule relating to the specific project.

Refer to the principles shown on pages 10-13 relating to building siting. These guidelines provide the envelope to put these principles into effect.

Zero Lot Line

It is a requirement that all courtyard houses be sited with one wall on the side boundary. The nature of this housing is that the allotments of land are small and the space utilisation is therefore of great importance. The most efficient use of the land is achieved where a significant length of the house is built on this boundary. This also ensures the correct orientation of the dwelling as the zero lot line will typically be placed on the southern boundary (Figure 56).

FIGURE 55. THE BUILDING ENVELOPE



The side wall built on the boundary has an impact on the adjacent land and should therefore take this into account. Roof forms should be articulated to provide an interesting and varied side elevation to this wall. This would be typically be achieved with gables or skillion roofs on the boundary which also assist with the channelisation of roof drainage (Figure 57).



FIGURE 56. BUILDING TO THE BOUNDARY

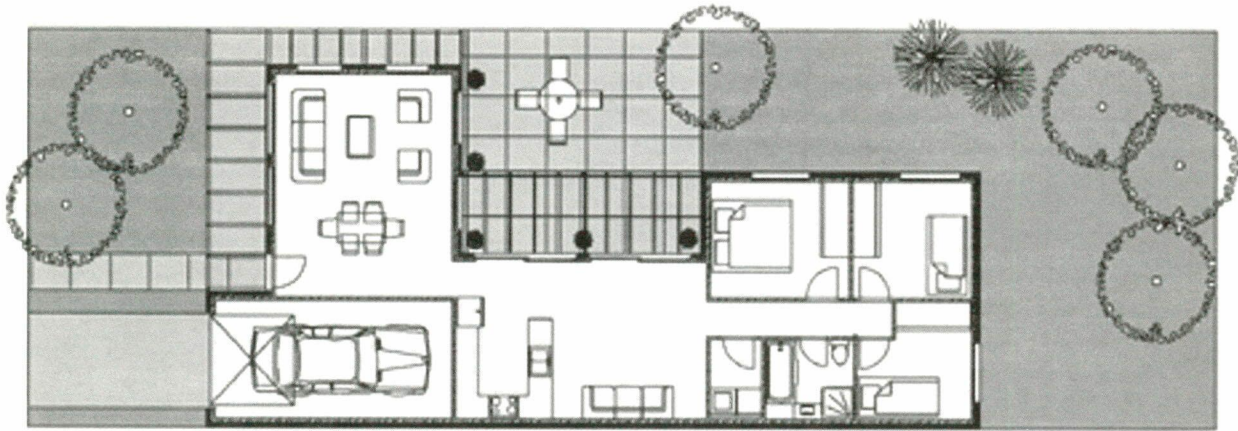
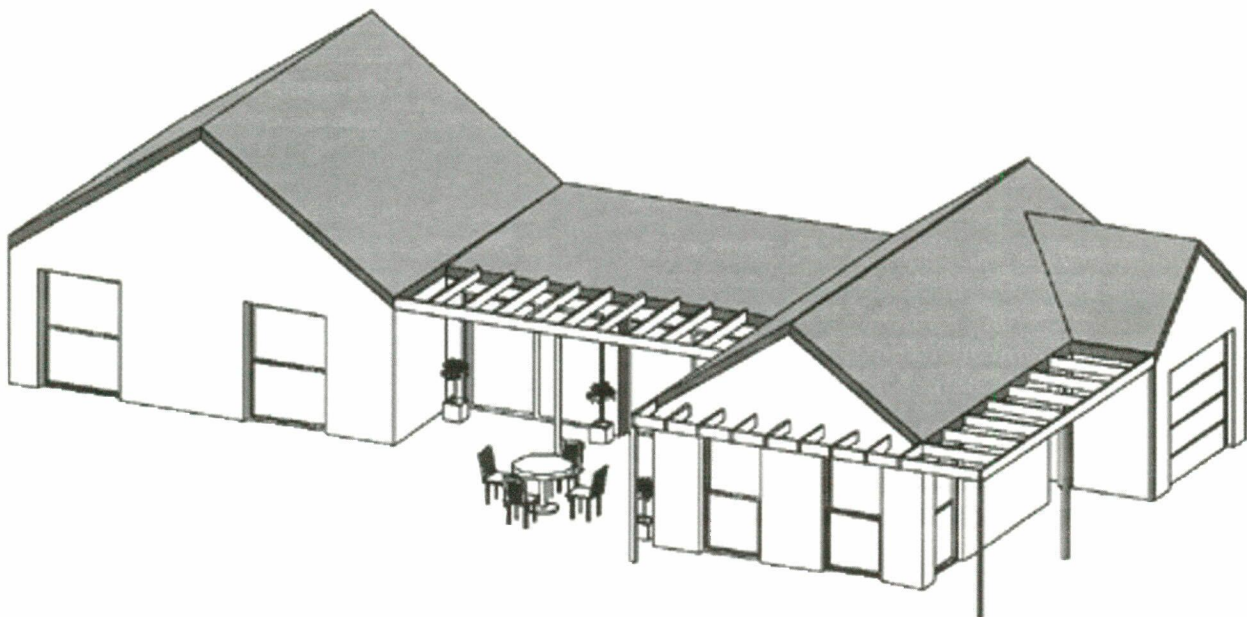


FIGURE 57. THE ROOF FORM IS AN IMPORTANT ELEMENT
WHEN BUILDING TO THE BOUNDARY



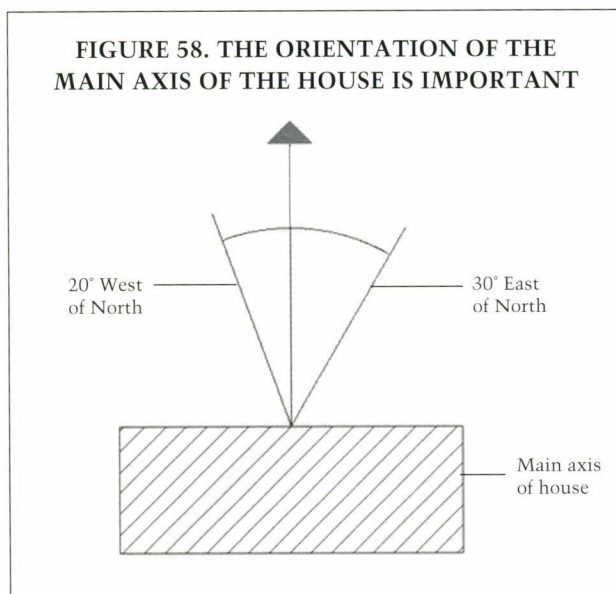


Orientation

Where possible, the houses should have their main axis within 30° to the East of North and 20° to the West of North. The principal living areas should be placed on the northern side while the service areas should be placed on the South (Figure 58).

The areas of private open space should receive at least 2 hours of sunlight between the hours of 9.00 and 3.00 at mid-winter. It is important to take into account the location and height of any adjacent buildings in the placement of the principal open space.

All houses must face the principal street and present an identifiable entrance to the street.



Courtyards and Private Open Spaces

The focus of all courtyard houses is the courtyard and this provides the particular attributes of these houses. The courtyard is therefore a very important element.

Courtyard locations are specified for all the courtyard allotments in the plans. This is to ensure that they have the correct solar orientation and that the interface with the adjacent houses is satisfactory (Figure 59).

The location of the courtyards specified is the general location as it is necessary to maintain flexibility to accommodate differing house designs. It is important, however, to maintain the northern orientation of the courtyards and to ensure that they are of a sufficient size to both contribute the light and space attributes as well as to provide useable open space where entertaining or play activities can be satisfactorily conducted.

A minimum of 20% of the site area should be provided as open space and a minimum courtyard area of 4x6 m is required. This has to be located, where possible, on the northern side of the house with direct access from the living areas. Large areas of glazing should be used to ensure that a relationship is established between the indoors and the outdoors of the house.

Garage and Carports

A minimum of two car parking spaces must be provided on site. These spaces may be stacked (i.e. one car space in a garage or carport and the other in a driveway in front of that garage or carport). At least one of the spaces must be covered (Figure 60).

Garages are a major element in any streetscape and considerable care should be taken to ensure that they are attractive additions to the streetscape (Figure 61). They should have a variety of treatments such as attractive gable ends, they shall not be allowed to project more than 2m in front of the rest of the house. Where possible the garages should be constructed under the main roof of the house so that they are integrated with the house. Where garages and carports are free standing, they must match the roof line of the house and be constructed of the same material as the house. Trim colours should complement the main body of the house. The garage door has the potential to be a major visual element of the streetscape. It should therefore, receive careful attention and be of a form, colour and material which complements the appearance of the house and makes a positive contribution to the street.



**FIGURE 59. THE LOCATION OF THE COURTYARD SHOULD BE CONSIDERED
IN CONTEXT OF ADJOINING HOUSES**

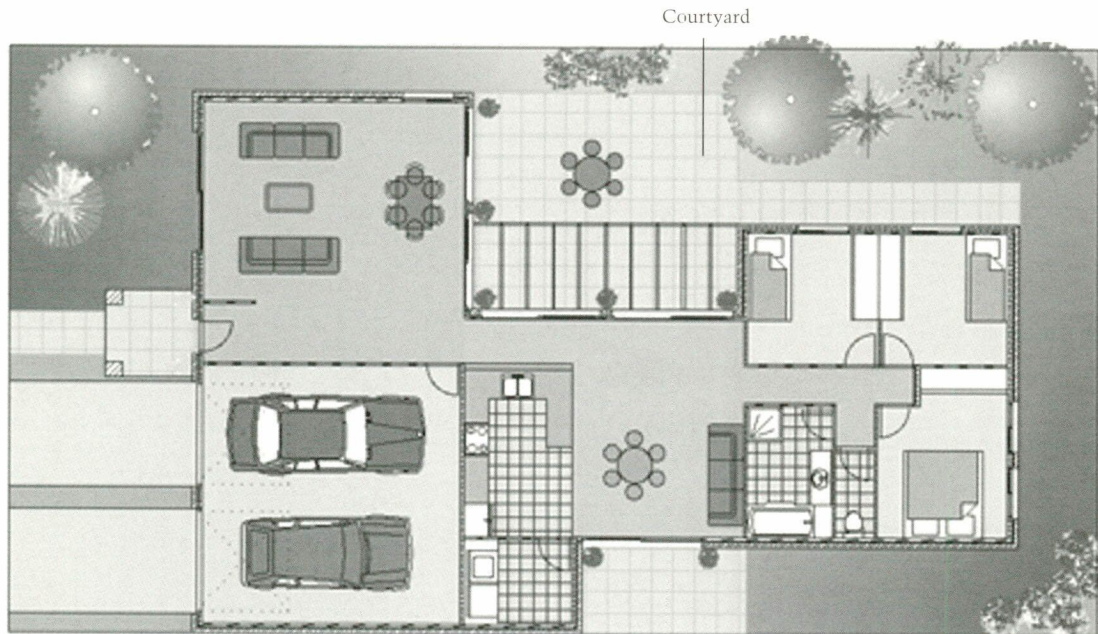


FIGURE 60. CAR PARKING IS AN IMPORTANT FEATURE OF COURTYARD HOUSING

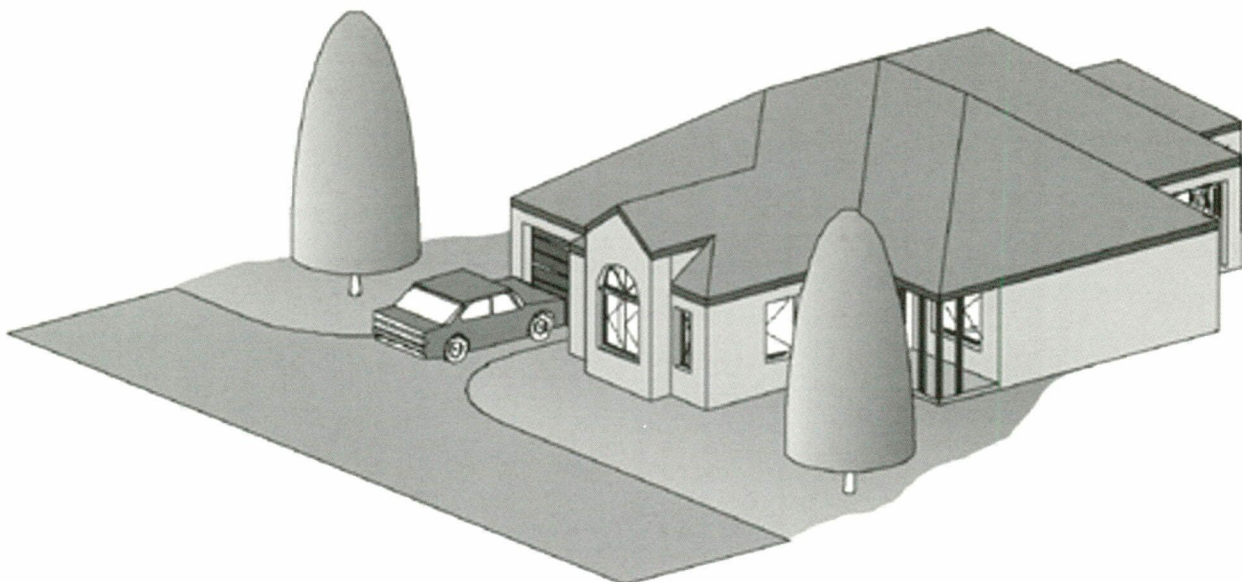
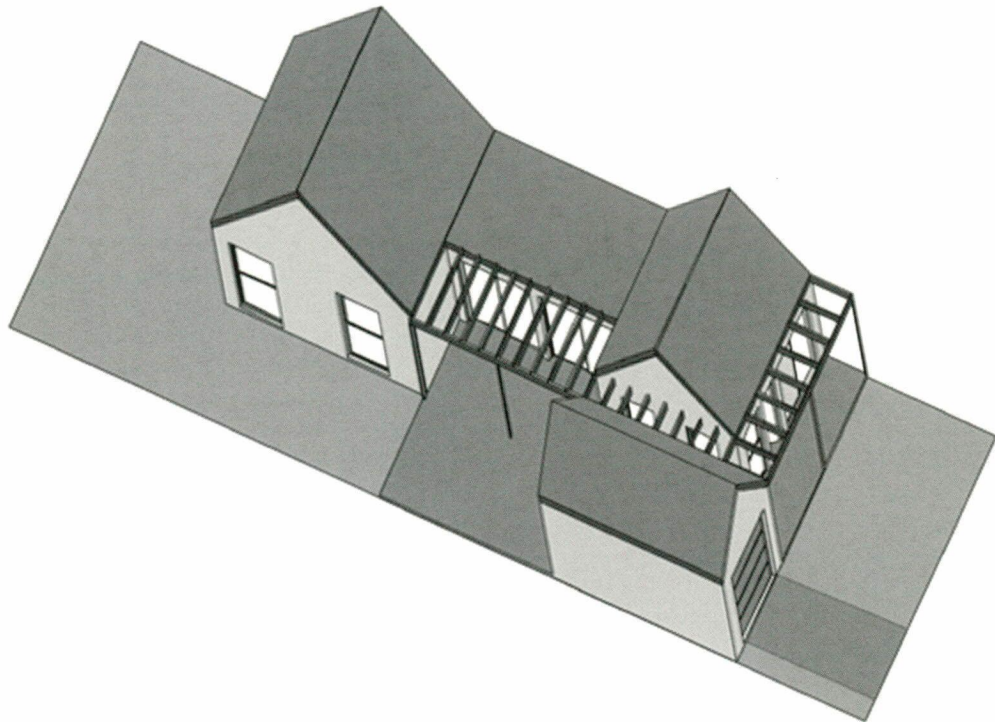




FIGURE 61. GARAGES ARE A MAJOR ELEMENT OF THE STREETScape



Access and Driveways

Generally, only one driveway will be permitted for each lot and it must be situated in accordance with the building envelope plan.

Driveways must not be wider than 4m at the street boundary of a lot and planting is encouraged between the driveway and the property boundary.

All driveways should be paved within 6 months of the Certificate of Occupancy. Approved paving materials include stone, brick or concrete aggregate.

Roof Form

The roof forms a very large part of the overall appearance of houses. The recent trend towards low pitch roofs has emphasised a very squat proportion. The appearance of the house can be significantly enhanced by higher pitch roofs. The perceived size of the house can be significantly enhanced with a more dominant roofscape (Figure 62).

FIGURE 62. ROOF FORM HAS A SIGNIFICANT IMPACT ON THE LOOK OF THE HOUSE





The use of steeper pitch roofs also has the advantage of additional accommodation or storage in the roof space. House designers are encouraged to design attic accommodation since this provides both attractive looking houses with very great street appeal, but it also maintains a smaller scale while providing two storey accommodation.

Roofs shall therefore be constructed to a pitch of between 25° and 45°. The roof form may be simple, but with the use of elements such as dormers, gables, verandahs, balconies and other architectural elements to provide a varied palette of forms.

Building Materials and Sand Colours **Walls**

External walls of dwellings should be constructed mainly from the following building materials:

- exposed, bagged or rendered brick
- cement rendered concrete, AAC or cement rendered blockwork
- stone
- tilt-up concrete slab panels (painted rendered or faced)
- a combination of materials (including fibre cement or timber with a predominance of masonry and glass.
- white or cream bricks for external walls are discouraged, however they may be used in combination with other colour bricks to create an attractive two-tone colour scheme.

House Colours

A schedule of recommended house colours is available from the local Landcom Estate Office. House builders and lot purchasers are encouraged to select house colours, including trim colours, from this list.

Roofs

Roof materials should be selected from either colourbond, tiles or slate, in a range of colours. Dark brown and muted tones should be avoided.

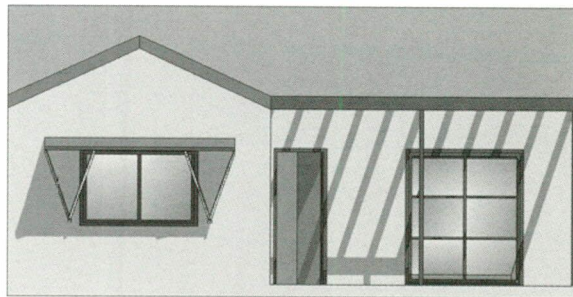
House Style

House style should emphasise simplicity and pleasing proportions while using other elements to contribute richness in appearance. In particular, the facades may be embellished with the use of decorative, but functional external elements such as window hoods, pergolas and trellis's and other such elements which contribute with sun control while also providing for visual interest with the delicacy of form and the shadows which they cast.

The use of gables can make strong forms in situations where such statements are desired and they can contribute much variety and interest particularly when contrasted with the softer hipped roof forms.

Where possible the use of front porches or verandahs can provide a focus for the front of a house and reinforce streetscape character (Figure 63).

FIGURE 63. HOUSE STYLE SHOULD EMPHASISE SIMPLICITY AND PLEASING PROPORTIONS



Outbuildings (Garages, Sheds, Toolsheds, etc)

Prefabricated garden sheds will be permitted, subject to approval, where they have 'Colourbond' walls or are painted. Unpainted or galvanised sheds will not be permitted.

Privacy

Houses, balconies, terraces and windows should be carefully sited and located to minimise overlooking habitable rooms and private open



space of neighbouring dwellings. The courtyard form largely overcomes privacy issues. However, where two storey houses are combined with single storey houses, issues relating to privacy should be carefully considered even though the courtyard form is also best in this situation.

Landscaping

Landscaping of the front garden including the planting of lawn, trees and shrubs and the formation of garden beds must be established within 6 months of occupancy.

The objective is to achieve a cohesive blend of landscape elements with street and parkland landscaping integrated with private gardens so that the streetscape presents as a landscaped garden. It should be noted that the topsoil is relatively thin, care should be taken to retain and redistribute any topsoil removed because of excavations for the house.

Where retaining walls are visible from the street they must be constructed of, or faced with, brick, stone, treated pine logs or similar and complement the house and streetscape.

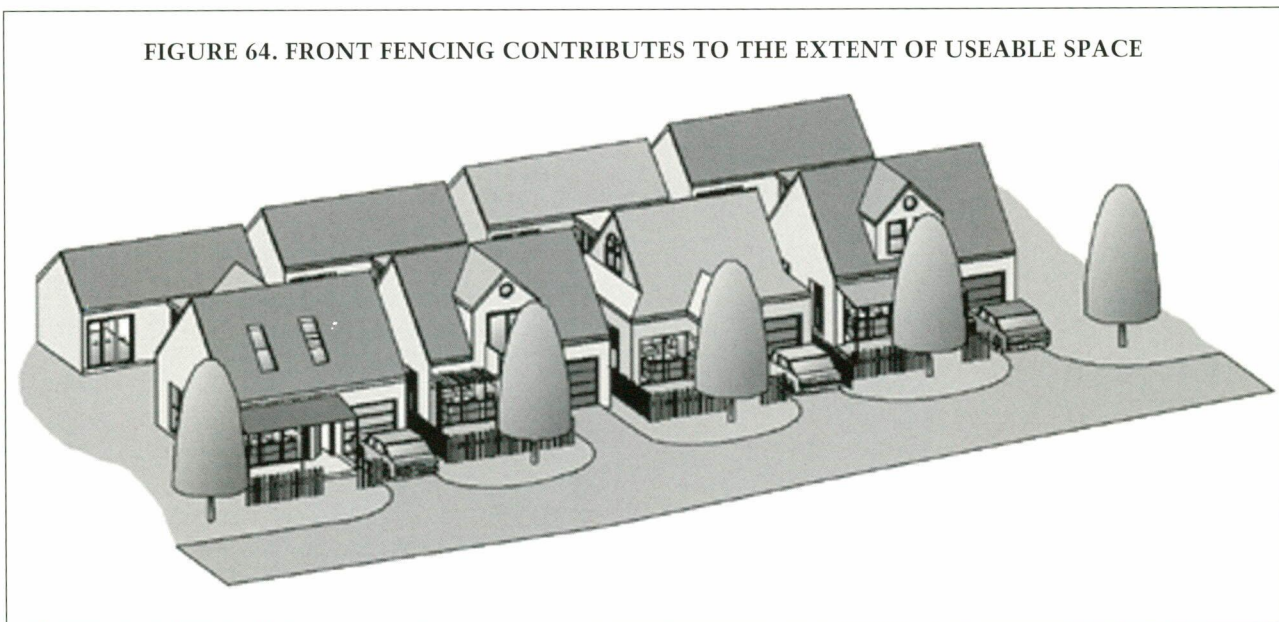
Embankments should not exceed a slope of 1 in 4. Retaining walls are preferred to steep embankments and should be kept to a minimum height – preferably no more than 600 mm.

Landcom through its activities will provide assistance to each householder to assist in complying with local streetscape guidelines. Contact should be made with the Landcom Estate Office as to recommended landscaping treatment and incentives which may apply.

Fencing

Fencing is a critical element in courtyard housing (Figure 64). Front fences contribute significantly to the extent of useable open space in a situation where space is at a premium. Front fences are

FIGURE 64. FRONT FENCING CONTRIBUTES TO THE EXTENT OF USEABLE SPACE





therefore recommended and can contribute significantly to the streetscape. Front fences should be no higher than 1200 mm and have a degree of transparency such as that achieved with pickets or lattice. Side fences shall be 1800mm high and be solid.

Materials should conform to the following:

- **Front fences**
- picket (timber, steel, aluminium with minimum 50 mm separation between uprights)
- piered brick or masonry posts with steel, timber or aluminium uprights (minimum 50mm separation between uprights) or lattice infill panels.
- capped timber paling, brush or solid masonry.
- **Side and rear fencing**
- timber panelling (lapped and capped) brush or colour coated metal fencing (Colourbond)

Where a front fence is provided, side boundary fences forward of the building line and the main body of the house must be the same materials, colour and height as the front fence. Fences visible from the street should be of a colour that complements the colours selected for the main body of the house.

Energy Efficiency

Energy efficiency principles are strongly encouraged. Contact should be made with the local supply authority where further advice can be obtained concerning the thermal rating of homes to meet local conditions (ie wall and ceiling insulation, glazing, cross ventilation, orientation and planting's). This will assist to improve comfort conditions and reduce energy costs for home heating and hot water services.

Solar hot water heaters are also encouraged but must be architecturally integrated with the roof of the dwelling.

Clotheslines and Letter Boxes

Clothes lines should be sited unobtrusively from public areas.

Letter boxes should be of masonry, timber or painted cast metal construction and be located adjacent to the driveway. House builders and lot purchasers are encouraged to construct letter boxes out of the same materials used in the house construction.

FURTHER INFORMATION

For further information regarding these guidelines contact the Landcom Estate Office.