Housing Alternatives for Our Neighborhoods
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This Study was a joint effort of the Housing Committee of the
American Institute of Architects (AIA), Portland Chapter, and the
Portland Planning Bureau.

1994

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Dear Guidebook Reader,

Portland is an expanding community. Projections for growth in the Metropolitan region over the next 20 years range from an additional 500,000 to 750,000 people. While planning for this potential growth, increasing attention has been focused on the question of what exactly makes a city livable.

A healthy city must fill out internally where an infrastructure of goods, services and transportation already exist before it spreads into the suburbs and beyond. If a city expands by moving horizontally, it requires a more extensive network of transportation systems, utilities, delivery systems for goods and services and brings with it increased traffic and pollution. Denser and more efficient housing is needed close to mass transit, shopping, and cultural services.

In addition to considering the needs of a healthy city, it is also important to provide housing that is adaptable to the changing needs of its residents. The traditional two-parent American family with two or more children is a shrinking minority. Portland and the nation are seeing an increase in the number of one and two person households and in single parent families. In the last ten years, home prices have increased faster than incomes on both a national and local level. New housing must respond to these demographic and economic changes.

Disagreements arise about how and where growth should occur. Many residents are understandably concerned when they hear of strategies for increasing housing density in their single family neighborhoods. This guidebook identifies examples of medium density housing, both in and outside of Portland, that the AIA Housing Committee feels are appropriate for urban infill development in and around single family neighborhoods. It also recommends that changes to existing zoning regulations be considered in order to encourage the use of these prototypical examples.

The American Institute of Architects/Portland Chapter Housing Committee offers this guidebook to stimulate ideas for residents, planners, and developers as they explore solutions for improving neighborhoods.

Sincerely,

David T. Hyman, AIA, Chairman, Housing Committee
American Institute of Architects/Portland Chapter
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Introduction

This guidebook responds to Portland’s need for more dense housing forms that blend into existing neighborhoods of predominantly single-family homes. This need is real and immediate given projections for growth in the Portland Metropolitan region. Many of the now empty lots throughout the city will be used for new housing structures. It is our hope that they will be built in ways which enhance the existing environment. Higher-density and single-family housing must be combined in a manner which uses and improves the existing neighborhood streetscape, character, and fabric.

The City of Portland has the raw material needed to provide such housing. A large quantity of vacant or under-utilized land exists in Portland. Much of it consists of scattered (infill) lots and small parcels less than 1/2 acre in size.

The Portland Planning Bureau along with the American Institute of Architects Housing Committee has published this guidebook to stimulate ideas as planners, developers, and homeowners explore workable solutions and proposals for fitting new housing units into existing neighborhoods. Though the guidebook was done as part of the Outer Southeast Community Plan, these ideas and concepts also apply to other Portland neighborhoods.
Advantages

As demographics and economics change, housing must also change to bridge the gap between income and housing costs. This requires that developers build smaller, more efficient and affordable housing where mass transit, shopping, and social services are close at hand. In addition to being affordable, the new residential housing must incorporate many of the amenities provided in Single-Dwelling detached housing, such as privacy, individualization, and private outdoor space.

As well as the amenities of privacy and secluded outdoor space, denser housing provides these advantages: increased security, shared services, and living and environmental efficiencies. Because the living units are attached, they bring the residents closer together physically, fostering a greater sense of community. This proximity also facilitates shared services such as laundry, child care and recreation. Having shared roofs and walls means costs of heating and land are kept to a minimum. Less material is required for construction and more area is free for shared services and green space.

The higher density housing provides enough concentration of population to support improved access to transit and neighborhood shopping. Higher densities also mean reduced cost for public services such as sewer, water, street maintenance, postal delivery, police and fire protection.
Zoning

This guidebook examines four types of medium density housing: rowhouses, multi-plexes, courtyard, mixed-use, which demonstrate good design principles. They may, however, not be permitted by existing zoning regulations. Potential conflicts relate primarily to density, height, bulk, setbacks and parking requirements. One objective of this guidebook is to examine what code changes need to be considered to allow denser housing forms while improving the existing neighborhood streetscape, character, and fabric.

Recommendations for changes are discussed for each type of housing. These recommended changes are based upon special design standards to assure that the proposed housing project is compatible with surrounding homes. The intent is that, if these standards are met, the development could proceed without the delay associated with a public hearings process. However, as with the Albina Community Plan, those not wishing to meet these compatibility standards may apply for a design review as an alternative. The design review process will require compliance with the design guidelines approved for the area.

*The examples cited are not the only appropriate ones. Nor is this an exhaustive analysis of housing types. Rather, this guidebook offers a variety of good examples which show that denser housing forms can enhance the livability of existing neighborhoods.*
Other Regulations

Building Code requirements, such as handicapped accessibility, as well as economic viability and topography, will impact the suitability of each prototype and have not been addressed in this guidebook. These examples are intended to stimulate ideas and may not necessarily meet all of these criteria. The Portland Building Bureau can provide information regarding Building Code requirements.
Report Organization
Each of the four types of housing is presented in terms of (1) Concept, (2) Prototype, (3) Zoning, and (4) Essential design considerations. Concept looks at the building layout, the interior plan and placement of rooms, as well as how the structure is designed to blend into existing neighborhoods. Prototypes are examples of each housing type. An assessment of zoning regulations is important to any plan to introduce housing units into a neighborhood. A short discussion of zoning considerations is presented for each housing type. Essentials are a summary checklist of items to be considered by planners, developers, designers, and residents.
Rowhouses are one of the most adaptable and efficient housing forms. They can be built to serve large or small families. Rowhouses are single-family dwellings without side yards. They are typically narrow and range from 16 to 25 feet wide. Generally, long, narrow units are built in the center of the block and wider ones at the corners. Rowhouses are usually at least two stories in height. A Single-Dwelling unit occupies all floors. Rowhouses have historically been constructed in urban areas where land prices are high, even though they can be equally appropriate in suburban areas.
Multiple, repetitive units can fill up an entire block or individual ones may fill in single lots or even half lots. They are becoming increasingly popular in Portland, because they are an attractive choice between the more expensive single-family homes and higher density multifamily housing. They generally are owner-occupied and appeal to many markets.

The advantages of rowhouses go beyond economics to comfort and livability. Well-designed rowhouses can provide individualized entries, privacy, and individually-owned outdoor space. The close proximity of neighbors offers increased security and greater interaction for children and elderly adults.
Row housing is efficient because of its compact floor plan. Rooms are organized along a hallway or path, the walls of which also serve as bearing walls. Bearing walls between homes also serve as sound barriers.

Most rowhouses are made up of front rooms, middle rooms and back rooms all of which open onto a primary hallway.

On-street parking preserves the sidewalk area for pedestrians with the added benefits of more "eyes on the street" and protection from vehicular traffic.
Hall
The hall runs from front to back. While it links the rooms, it may serve several other support functions. If designed to a minimum of six feet, it may be used to accommodate a half-bath, closet space and bookshelves. The hall seems more spacious when interior stairs open into it.

Front Room
The front room is usually the parlor or living room. It is close to the street and the entry. It has a more public character and is where guests are welcomed and entertained.

Middle Room
The middle room can take on a variety of functions. If a light well or skylight is used to bring air and light into the interior of the unit, it is often used as a dining room. If not, it may be used for the bathroom or kitchen.

Back Rooms
The back rooms are used for more private functions such as bedrooms. They usually face a private garden or backyard.
Bay Window
Bay windows are a recognizable element common to rowhouses. Because of the narrow facades, there is less opportunity for windows. Bays allow a view up and down the street as well as across the street. They increase the amount of light and air entering the home. In addition to porches and stairs, bays break up the mass of the building and create a more interesting appearance.

Porches
Porches can be shared by two separate entries or stand alone.

These stand alone porches emphasize individuality by varying architectural features such as pedimente and column.
Each entry has an identity of its own.
Traditional bay windows contribute delight to the streetscape.

These contemporary rowhouses incorporate traditional bay windows in a modern form.
Data

Location: S.W. Viewpoint and Abernathy
Year Built: 1993
Architect: James Meyer
Boucher Mouchka Larson Architects
Prototype: Rawhouse
Site Area: 4,150 square feet (10 acres)
Number of Units: 3
Units per Acre: 31
Unit Sizes: 2,346 SF plus bonus room
Unit Type: 2 Bedroom/2 1/2 Bath
Off-street Parking: 2 per unit
Allowable zones: R1, Similar projects at slightly lower density may also be built in an R2 or R2.5 zone

14 Prototype ROWHOUSES
Those Rowhouses take advantage of views and topography while protecting privacy.
Data
Location: N.W. 17th Avenue and Irving St.
Year Built: c.1990
Prototype: Rowhouse
Site Area: 10,000 square feet (.23 acres)
Number of Units: 6
Units per Acre: 26
Unit Size: 1,500-2,200 SF
Unit Types: 2 Bedroom/1 1/2 Bath
3 Bedroom/1 1/2 Bath
4 Bedroom/2 1/2 Bath
Off-street Parking: 0
Allowable zones: R1 or R2
Data
Location: NW 28th and Upland
Year Built: Phase One 1982, Phase Two 1983
Architect: Edgar Waehrer/ Susan Sturgis
Associate Designer: Rick Michaelson
Prototype: Rowhouse
Site Area:
  Phase One 6500 SF
  Phase Two 4320 SF
Number of Units:
  Phase One 6
  Phase Two 4
Units per Acre: 40
Unit Sizes:
  2,000 SF plus garage
Unit Types:
  3 Bedroom/ 2 1/2 Bath
Off-street Parking: 2 per unit
Allowable Zones: R1, RH
Zoning Considerations

Long and narrow lots (approximately 80 ft. by 20 ft.) are ideal for rowhouses. Since side yards are non-existent, back and front yards are critical. A minimum of 20 feet should be provided for rear yard privacy and 10 feet for a front yard transition zone to the street. As long as these setbacks are achieved, lot coverage maximums should be waived. New rowhouse buildings should not exceed the height of surrounding residences.

The driveway and garage should be subservient to the porch and front yard space. Drawing attention to the automobile can impair the appearance of rowhouses on the street. Access from back alleys is preferred, if available. Garages which extend to the sidewalk and are topped with decks and plantings can mitigate the impact of too many driveways. For many zones this garage extension into the front yard requires an adjustment to current regulations. It also will require increased enforcement to prevent parking over sidewalks. On-street parking without on-site parking requirements is a viable option.

Based upon this study, the AIA Housing Committee finds that rowhouses should be permitted on 20 ft wide lots in R7, R5 and R2.5 zones, as long as design standards, relating to the above considerations, have been met.
Essentials of Good Row Housing

☑ Provide natural light on at least two sides.

☑ Provide individualized entries.

☑ Utilize architectural detail, bay windows, porches and balconies to break down the mass of repetitive units.

☑ Make garages subservient to the rest of the facade.

☑ Landscape the front yard to enhance privacy and soften the transition to the street.
Multiplexes is a general term referring to a variety of housing forms, including duplexes, tripLEXes, and four-plexes. Anything larger is associated with apartment buildings, which are usually inappropriate in single-family (detached-dwelling) neighborhoods. Whereas rowhouses are side by side, multiplexes units are stacked one on top of the other. The units can range from studios to three or four bedrooms in size. They can be for individual ownership or rent.

Many examples of well-designed multiplexes housing can be found in Portland's older neighborhoods. The most successful ones are of a form and size that match neighboring detached single-dwellings. In fact, often they appear to be large single-dwellings.
The following diagrams illustrate different types of multiplex configurations:

- **Side by Side Duplex**
- **Up/Down Duplex**
- **Side by Side Duplex with accessory unit in back yard**

Variations on a Duplex

*Note: A garage apartment/backyard rental could be added to each scheme*
Typical Side Elevation

Typical Front Elevation

Typical Site Plan
Data
Location: Boston
Prototype: Triple Deck (Multiplexes)
Unit Size: 1,200 SF
Unit Type: 2 Bedroom/1 Bath
Off-street Parking: 0
Allowable Zones: R1, R2, R2.5a,
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<th><strong>Data</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Location:</strong></td>
<td>N.W. 17th and Gilsan</td>
</tr>
<tr>
<td><strong>Prototype:</strong></td>
<td>Multiplex</td>
</tr>
<tr>
<td><strong>Year Built:</strong></td>
<td>c1904</td>
</tr>
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<tr>
<td><strong>Number of Units:</strong></td>
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<tr>
<td><strong>Units per Acre:</strong></td>
<td></td>
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<tr>
<td><strong>Unit Sizes:</strong></td>
<td>675 SF and 922 SF</td>
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<td><strong>Unit Types:</strong></td>
<td>2 Bedroom/1 Bath</td>
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<td></td>
<td>3 Bedroom/1 Bath</td>
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<td><strong>Allowable zones:</strong></td>
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Data

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<td>Architect</td>
<td>Hughes Baldwin Architects</td>
</tr>
<tr>
<td>Year Built</td>
<td>1990</td>
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<tr>
<td>Prototype</td>
<td>Multiplex</td>
</tr>
<tr>
<td>Site Area</td>
<td>15,755 SF (.36 acres)</td>
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<td>Number of Units</td>
<td>18</td>
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<td>Units per Acre</td>
<td>50</td>
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<tr>
<td>Unit Sizes</td>
<td>875 SF to 1,800 SF</td>
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<tr>
<td>Unit Type</td>
<td>1 Bedroom/1 Bath</td>
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<tr>
<td></td>
<td>2 Bedroom/2 Bath</td>
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<td>Off-street Parking</td>
<td>18</td>
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<tr>
<td>Allowable zones</td>
<td>K1, RH</td>
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Prototype

MULTIPLEXES

Data
Location: S.W. 19th and Elm Street
Architect: George Wright
Year Built: 1916
Prototype: Multiplex
Site Area: 10,000 SF (.23 acres)
Number of Units: 8
Units per Acre: 38
Unit Sizes: 1,210 SF to 1,300 SF
Unit Types: 2 Bedroom/1 Bath
Off-street Parking: 3
Allowable zones: R1
Zoning Considerations
To promote neighborhood compatibility, the yard setbacks, height, and mass of the multiplex building should approximate that of the surrounding residences. Exemptions from the maximum lot coverage allowances should be considered to encourage Multiplexes on in-fill lots. Privacy between residences can be maintained by carefully locating and orienting windows, doors, terraces, balconies, and porches.

It is ideal to have garages built into the structure or in an accessory building that is located on the rear of the lot, as with many single-family homes. Parking requirements should be lessened so that landscaped yard space is maximized. Access from back alleys is preferred, though often not available. On-street parking should be utilized whenever possible.

Based upon this study, the AIA Housing Committee finds that Multiplexes should be permitted on lots in R7, R5 and R2.5, single-dwelling zones, as long as design standards relating to the above considerations, have been met.
Essentials of Good Multiplex Housing

☑ Provide private gardens, terraces or balconies for each unit.

☑ Use sound-insulated walls and floors to enhance privacy.

☑ Incorporate closets, shelves, and support spaces adjacent to common walls.

☑ Provide compatibility with other homes on the street through common use of building size, proportion, window placement, roof form or landscaping.

☑ Use the predominant front yard setback of surrounding houses.

☑ Where possible, locate ground floor units at least four feet above the street level for security and privacy.
Courtyard Housing

The Courtyard Housing Prototype dates back to Roman Times. In its simplest form, it consists of individual units in a "U" shape grouped around a common garden or patio. It is adaptable to the requirements of many cultures and climates. In arid regions, roofs are often sloped inward towards the courtyard to channel rain water to plants and fountains. In urban centers with limited land area and shrinking backyards, it offers an opportunity for higher density with a large, shared green space.

Many people think of courtyards as indigenous only to warmer climates, but in fact many fine examples exist in Portland today. Most were built between the 1920's and 1950's. Very few are being built today, but it is a prototype that offers many advantages for the modern household. As with Rowhouses and Multiplexes, advantages include increased security, shared services, cost and environmental efficiencies as well as providing privacy and individual ownership typical to single-family homes.
Types of Courtyard Housing

Because most units face a courtyard, neighbors are able to look after each other’s property. Since security is obtained from the courtyard, the units do not have to be raised from the ground, thereby offering easier accessibility for the handicapped. Courtyard Housing is adaptable to almost any degree of communal living from simply sharing the open space to sharing a common meeting room, laundry facilities, child-care, cooking, and gardening. It is also conducive to elderly care. Children are easily supervised because all units face onto the courtyard.

These diagrams illustrate common variations of courtyard housing.

These units are aligned and backed so that they can share service and entry areas.
These units are arranged to allow for maximum exposure to the street.

These units are arranged to offer a more private courtyard with controlled access.
**Data**

Location: N.W. 26th and Raleigh

Prototype: Courtyard

Year Built: c1904

Site Area: 25,296 SF (.58 acres)

Number of Units: 25

Units per Acre: 43

Unit Sizes: 405 SF to 605 SF

Unit Types: Studio/1 Bath

1 Bedroom/1 Bath

Off-street Parking: 0

Allowable zones: R1, RH
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<td>Rudolph Schindler</td>
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<td>7 Garages</td>
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<td>Allowable zones:</td>
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Courtesy of University Art Galleries, University of California, Santa Barbara
(R.M. Schindler Architecture Collection)
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<td>Prototype: Courtyard</td>
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<td>Site Area: 22,600 SF (.52 acres)</td>
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<td>Number of Units: 13</td>
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<td>Unit Sizes: 435 SF to 565 SF</td>
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<td>Off-street Parking: 15</td>
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44 Prototype  COURTYARD HOUSING
Zoning Considerations

In order to blend successfully into existing single-family areas, front yard setbacks should conform as closely as possible to others on the street. Side and rear yards should be a minimum of 5 feet to allow for service and delivery. Courtyard housing buildings are usually no more than two stories and fall within R7, R5 and R2.5, Single-Dwelling zone, height allowances.

Since courtyard housing embraces common open space, which is not to be hindered by vehicles, off-site parking becomes problematic. Coincidentally, courtyard housing became extinct when the City began requiring off-street parking. Off-street parking requirements should be reduced where courtyard housing is desired.

Based upon this study, the AIA Housing Committee finds that courtyard housing should be permitted on lots in R7, R5 and R2.5, single-dwelling zones and R1 and R2, multi-dwelling zones, when the setbacks and height requirements have been met, along with design standards, relating to the above considerations.
Essentials of Good Courtyard Housing

- Maintain an entry courtyard width of at least 30 feet
- Place service entrances and garbage cans either behind the units or in a minor service courtyard
- Provide individualized entries to each unit
- Provide courtyard landscape (fountains, shade trees, lawn, etc.) that gives the appearance of individual yards in front of each unit while allowing the opportunity for visual surveillance of the entire courtyard
- Provide common interior space for shared activities such as day care, laundry, informal gatherings.
Mixed-use Housing

Mixed-use is one of the oldest housing types. Since antiquity, when the shop keeper lived above his store, there have been mixed-use buildings. Small scale mixed-use buildings fit easily into the fabric of residential neighborhoods. Its forms are many - from professional offices attached to homes to apartments above restaurants and retail shops. Mixed-use housing offers specific and unique positive advantages. Some of these advantages are convenience, lively street life and security.

Convenience

Shops and offices within walking distance reduces travel time and promotes less reliance on the automobile.

Lively Street Life

A mix of commercial and residential activity ensures that streets are active at all times of the day.
Security
Shop keepers provide a watchful eye during business hours while residents are away at work. In the evening, after the shops close, residents provide the watchful eyes.
Many successful mixed-use housing examples include homes which have been remodeled or expanded to provide commercial space. The major focus here is architectural characteristics which make these buildings suitable for infill sites. The prototypes which follow are buildings which were originally designed to be mixed-use.²

²There are other important factors, that need to be taken into account for mixed-use housing types, for which this analysis does not address, such as the complex economic considerations involved in combining residential and retail uses.
Data

Location: N.W. 22nd and Flanders
Architect: SERA Architects, PC
Year Built: 1986
Prototype: Mixed-use
Site Area: 20,500 SF (4.7 acres)
Uses:
  - First Floor: Retail
  - Second Floor: 10 units
Units per Acre: 21
Unit Sizes: 1,000 SF
Unit Types: 2 Bedroom/2 Bath
Off-street Parking: 27 (shared with retail)
Allowable zones CM, CS, CG, EX, CX
### Data

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<td>Site Area:</td>
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<td>Uses:</td>
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**Second Floor: 4 units**  
(currently being used for offices)

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<th>Units per Acre:</th>
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<td>Allowable zones:</td>
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**54 Prototype**  
**MIXED-USE HOUSING**
Initially designed for residences above, this N.E. Portland building currently is used by retail and offices.
Data
Location: N.W. 22nd and Thurman
Architect: Zaitl/Miller
Prototype: Mixed-use
Site Area: 12,750 SF (.29 acres)
Uses:
First Floor: Retail
Second Floor: Office
Third Floor: 4 units
Units per Acre: 14
Unit Sizes: 1,100 SF to 1,150 SF
Unit Types: 2 Bedroom/1 Bath
3 Bedroom/1 Bath
Studio/1 Bath
Off-street Parking: 22
Allowable Zones: CM, CG, CS, CX, CG

56 Prototype
MIXED-USE HOUSING
Zoning Considerations
Currently, only a limited number of lots in existing residential neighborhoods are zoned for mixed-use structures. When designed for these lots, the buildings should conform to the height and massing of the surrounding homes. Since most living units are on upper floors, windows, balconies, or terraces should not look into side yards.

Parking should be accommodated within the structure. Corner lots and lots with alleys are ideal since they offer alternative access points for vehicles. Whenever possible, on-street parking should be looked upon as a viable option for residents, employees and customers.

Based upon this study, the AIA Housing Committee finds that mixed-use housing should be permitted on corner lots in R7, R5 and R2.5, single-dwelling zones and R1 and R2, multi-dwelling zones, when design standards, relating to the above considerations have been met.
Essentials of Good Mixed-use Housing

- ✓ Ground floor commercial space must be close to the sidewalk and attractive to pedestrians.
- ✓ Provide a separate service drive or alley for trash removal and deliveries.
- ✓ Separate residential and commercial entrances.
- ✓ Locate parking away from the front of or within the building.
- ✓ Provide sound insulation between the residential and commercial spaces.
- ✓ Provide decks and roof terraces for residents.
- ✓ Plant Street Trees.
Summary
Four types of attached housing have been presented: Rowhouses, Multiplexes, Courtyard, and Mixed-use. For each of these, the structural concept, prototypes, an assessment of zoning, and a checklist of essentials has been offered. In addition to the advantages presented, each housing type offers its own unique benefits to the user. It is clear that Portland neighborhoods can enjoy immeasurable benefits by integrating attached homes on vacant lots.

It is recommended that the reader consult The 10 Essentials for North/Northeast Portland Housing, A Book of Guidelines for Renovations and New Construction, 1991, published jointly by the Portland Planning Bureau and the AIA Housing Committee, for further ideas on integrating new housing into Portland's neighborhoods.
Appendix A

Portland Zoning Classifications

Zoning is a means to regulate use, density, height, bulk and parking. The following describes each zone referenced in the prototypes. Refer to the Portland Zoning Code, which is available in the Permit Center, for information relating to the current allowances and requirements for each zone.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>RH</td>
<td>High Density Residential</td>
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<tr>
<td>R1</td>
<td>Multiple Dwelling Residential 1000 SF minimum lot size</td>
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<td>R2</td>
<td>Multiple Dwelling Residential 2000 SF minimum lot size</td>
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<td>R2.5</td>
<td>Single-Dwelling Residential 2500 SF minimum lot size</td>
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<td>R5</td>
<td>Single-Dwelling Residential 5000 SF minimum lot size</td>
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<td>R7</td>
<td>Single-Dwelling Residential 7000 SF minimum lot size</td>
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<tr>
<td>CN</td>
<td>Neighborhood Commercial</td>
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<tr>
<td>CM</td>
<td>Mixed Commercial/Residential</td>
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<tr>
<td>CS</td>
<td>Storefront Commercial</td>
</tr>
<tr>
<td>CX</td>
<td>Central Commercial</td>
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