SITE PLANNING AND DESIGN FOR THE ELDERLY

ISSUES, GUIDELINES, AND ALTERNATIVES Diane Y. Carstens
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Case Example: Inner Courtyard With a Dual Orientation

San Rafael Commons, San Rafael, California
Architects: Kaplan, McLaughlin Diaz; Ellis Kaplan, partner-in-charge
Original Evaluation: Kathryn H. Anthony, Ph.D., University of Illinois at Urbana-Champaign

Although the general layout of facilities at this project is noteworthy—particularly the relationship between the courtyard, community room, and street—greater spatial definition is needed to support courtyard use.

Residents like many of the architectural and landscape architectural features, such as views of the courtyard from unit windows and the open galleries. The courtyard, however, serves primarily as an access route; few stop to sit and enjoy the outdoor space. Lack of intimate seating areas and semiprivate spaces were seen as important drawbacks during the evaluation of this project. Major assets of and problem areas in this courtyard space are noted below (see fig. 9–12).

1. Location for protection and connection to activity.

The courtyard arrangement provides a protected outdoor space with connections to key on- and off-site activity generators.

9-11.
Kings Road, East: The courtyard and adjacent unit patios provide a convenient and intimate place for drop-in socializing. Greater privacy for unit patios is desirable. One resident, however, selected her unit for the view—she monitors everyone coming and going through the entry gate. Photo courtesy of Ed Lubieniecki.
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9-10.
Kings Road, East: A shared courtyard patio provides an intimate place to sit and watch those coming and going, to wait for mail, and socialize.
• A location along pedestrian routes connecting key facilities (units, parking, the site entry, mail area, and community room) maximizes opportunities for drop-in use of the courtyard.

• The relationship between the courtyard and community room offers a dual orientation for views and access both to the active street and protected outdoor courtyard; choices are maximized.

• Entrance to the courtyard space from the street is controlled, but allows for views. Although it is a prime location for seating, with the adjacent mail area, street, and community room, no chairs or benches are available. The area also creates a wind-tunnel effect.

9-12.
San Raphael Commons, San Rafael, California.
Kaplan McLaughlin Diaz, Architects, San Francisco; Ellis Kaplan, partner-in-charge.
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• Open galleries surrounding the courtyard on upper stories provide opportunities for viewing and drop-in use.

2. Spatial definition for a variety of spaces is needed.

While residents greatly enjoy the view of the courtyard from their units, few actually stop in the courtyard while passing through.
- The courtyard is too open and undefined for comfortable sitting and socializing. Although a pattern is created on the ground plane with planting and paving (which provides an interesting view from upper stories), these elements do little to define intimate areas within the space or to establish larger areas for group activities that could “spill over” from the community room.
- Few semiprivate or transitional spaces exist between the privacy of the units and the public courtyard and community room. Previewing and overhead protection are available (with the galleries), but no comfortable areas are available to sit or pause in a halfway zone. A hierarchy of spaces is essential.
- The two sets of benches, located directly in the center of the open space, are overexposed. In addition, their length (too long) and placement (not at right angles) make conversation more difficult and less intimate. Residents like to look at the benches, but few actually use them.

Rooftop Developments

Rooftop developments pose many potential design and use problems that are difficult to overcome. However, such developments may be appropriate in several situations to maximize exceptional views, both on the ground plane and distant views, and to provide outdoor space for developments that offer little or no ground-level outdoor space (most likely in a dense urban area). In neighborhoods with definite security problems and in those cases where secure space such as an inner courtyard is not available at ground level, rooftops offer a safe and secure outdoor environment. Activity on the roof, however, may reduce opportunities for community contact.

Several important factors for rooftop developments must be addressed. Rooftop developments often tend to be removed from the general activity within the building, becoming an unused appendage to the building rather than an extension of activity. Rooftop and indoor spaces must be planned together to develop a symbiotic relationship among access, views, and concentrations of activity. Where indoor spaces do not provide a natural flow of movement and activity from a focal point within the building to the roof, use of rooftop space is likely to suffer.

Another important point to consider for rooftops is physical comfort, especially protection from harsh winds, excessive sun, heat, and glare.

Where rooftops are appropriate, they may accommodate many types of activity, from resident gardening to pleasure gardens, patios, and recreation. It is wise to allow for a variety of subsidiary uses. Many sources are available for general design information on rooftop developments [2]. A few special issues for rooftops where older people are concerned are outlined below.

Location

1. A location near centers of indoor activity, with easy and direct visual and physical access, is essential. Indoor activity spaces adjoining the rooftop development are ideal (see figs. 9–13, 9–14).

2. Protection from harsh winds, too much sun, glare, or shade is a must; the location and orientation of surrounding buildings play an important part in this.

3. Maximize exceptional views, especially for those who may spend longer periods of time seated in the same location.

Spatial Characteristics

1. Rooftop developments must feel safe and secure. Vertical elements, edge definition, and a protected seating area may lend a sense of safety and security.

2. Like shared patios, rooftop developments often need to accommodate a wide range of activities, from large events, such as July 4th fireworks, to an intimate twosome enjoying the view, or a single person gardening. Flexibility of space to accommodate residents’ interests encourages use by all. Thus a variety of spaces for these activities is ideal (see “Shared Patios and Terraces,” above).

Amenities and Detailing

1. Amenities and detailing for comfort and ease of access and use, among others, are important. Some
9.13
Rooftops can accommodate a variety of activities, especially when limited outdoor space is available at grade. Connection to indoor activity, protected access and seating areas, and a variety of defined areas on the roof maximize use. Visual surveillance and edge and vertical definition enhance a sense of safety and security. Elements for comfort, protection from wind and sun are essential.

An urban site often requires an innovative architectural solution for outdoor spaces. The terrace at Angelus Plaza, in downtown Los Angeles, provides premium outdoor space on top of a five-story interconnected activity/service center, lined by sixteen-to seventeen-story residential towers (1,000 units). Terrace use, however, is primarily limited to a few who enjoy the view and programmed events; it also serves as an access way between units and the street-level entry. Unfortunately, key elements that would have connected activity and provided human scale were eliminated from the preliminary plans to meet budget constraints. These elements (not shown) were to include an on-terrace dining room, atrium/spa, and neighborhood spaces.
suggested facilities for most types of rooftop uses include:

- Easy access to restrooms and drinking fountains is necessary.
- Comfortable seating under cover, in shade and sun, is a must. Seating with arms and backrests is essential. Movable chairs and tables are preferable.
- Walking surfaces should be nonslip and nonglare.
- Night lighting for special events, such as a moon-gazing festival, adds flexibility of use.

2. Resident rooftop gardening requires many special considerations to ensure success, including the following (see also the case example below, Woolf House):

- Ample storage space, potting tables, resting places (seating in shade), and water sources are essential.
- Raised gardening beds minimize stooping and are accessible by the handicapped (see "Planters and Planting Beds" in chapter 10).
- Tiered shelves for potted plants and greenhouses for growing exotic plants and starting seedlings increase garden versatility.
- Educating residents about rooftop gardening and the properties of lightweight soil mixes is essential for successful gardening.
- Management of rooftop gardens, allocation of space, and the possibility for shared equipment are especially important due to limited space (see "Gardens and Nature Areas," below).

3. To maximize exceptional views, railings and balustrades should allow for viewing from a seated position. Solid balustrades (24-inch maximum height) with glassed or open railings extending above (to a minimum height of 42 inches) will allow for viewing.

Case Example: Rooftop Gardening

Woolf House, San Francisco, California
Architects: Robert Herman Associates
Original evaluation: Diana Colby

This nine-story redevelopment project houses 182 units, a lounge, glass-covered dining and sitting areas, on-grade outdoor recreation and gardening areas (recently added), as well as the roof garden. Highly successful, this project illustrates the need for flexibility in design as well as management and education about rooftop gardening.

The success of a neighborhood community garden and a survey of seniors in the area prior to redevelopment spurred the development of this rooftop for gardening. A little more than a year after completion, a survey of the residents suggests that it is an asset to the development and a success. Some of the highlights of the rooftop garden and the evaluation are summarized below (see fig. 9-15).

1. The gardeners
The success of the rooftop gardening might be attributed to the cultural predilection of residents toward gardening. Seventy-five percent are Chinese, whose traditions include small-area gardening, although the gardens are an important part of the project for residents of all ethnic groups [3]. The majority of gardeners had gardened before their move into the project, confirming other research that indicates a continuity of activity patterns into old age—if physical ability permits.

2. A sense of safety and security
Due to several design features, the Woolf House roof does not feel exposed or threatening.

- The undulating line of the 4-foot-high parapet walls alternating with open railings that allow for viewing contribute to a sense of security by breaking up the space. The ninth-floor wall also provides scale and enclosure.
- The location of the greenhouses defines an edge and adds enclosure.
- The garden is visible from apartment windows on the ninth floor, thus increasing surveillance.

3. Comfort and protection from wind
Wind was a special concern for this San Francisco rooftop. Consultation with a wind expert resulted in the following design responses:

- The leeward side of the roof, the windiest, was not used, while the garden beds were placed on the southwest side.
- Potting greenhouses minimize the reverse wind currents.
4. Access
Principal access to the roof from the ninth-floor corridor and elevator is convenient, but does not present a strong connection to indoor spaces.

- The addition of indoor community space on the ninth floor, connecting to the garden, would increase the flexibility and comfort of rooftop use.

5. Planters, greenhouses, and gardening amenities
Amenities for gardening on the roof include raised planters, greenhouses, watering hoses, garbage cans, and a light over each access door.

- Eight rows of raised staggered beds on a north-south axis maximize exposure to sunlight and access by the handicapped. Although shallow (from 18 inches to 8 inches deep) due to weight limitations, the beds are highly successful.
- The four greenhouses have been less successful and are used primarily for storage of tools, soil conditioners, shoes, and so on. Management of and education about roof garden and greenhouse use, as well as additional storage space, may increase use.

- Additional gardening facilities for ease of use and safety could also include tiered shelves for potted plants (one corner of the roof has been claimed for such storage), a shaded potting bench, storage, night lighting, a water fountain, and shaded seating/resting area.

6. Management and programming
The need for garden management and resident education concerning rooftops was indicated by the survey.

- Education (through fliers, tours, guest speakers, and so on) about the many possibilities for greenhouse use is needed.

Woolf House: The rooftop feels safe and secure with visual surveillance, protection from strong winds, and a defined edge. Highly successful for gardening, the rooftop is also used for viewing and simply as a feature to show off to visitors. Additional facilities for comfort and flexibility of use are needed.
Assignment of greenhouse space in conjunction with the beds for starting early vegetables and for plants that require more heat was suggested.

- Education about the lightweight U.C. soil mix used for planters is needed to alleviate residents' doubt about the richness of the soil. At present, residents cart soil conditioners up eight stories, placing greater demands on storage and increasing the weight load.

**Unit Patios and Balconies**

Private balconies and patios for residential units present opportunities for the less able to enjoy the outdoors and watch activity from a comfortable and secure place readily accessible from the unit. Balconies and patios can also offer places for personalization and casual socializing, both of which may be quite limited in planned housing. If well designed, such private outdoor areas can physically and perceptually extend the living area, which is often quite small in retirement housing.

**Location**

1. Patios and balconies should be directly accessible from indoor living spaces; connection to the living room is ideal.

- Easy access to the kitchen increases the flexibility of use.

- Balconies off living rooms should not block views of activity areas below. They may be moved slightly to the side to enable viewing.

2. It is important to orient patios and balconies for protection from extremes in weather. An orientation for sun exposure of 30 percent each day during spring, summer, and fall months is often recommended [4]. Adequate shade, however, is also necessary; 50 percent of the patio area in shade is ideal and may be achieved through the use of arbors, for example. Protection from strong winds is also an important consideration for balconies.

3. Balconies above the twelfth floor often feel unsafe. They may be justified for exceptional views or when little outdoor space is available. Above the twentieth floor, the sense of vertigo, strong winds, and other undesirable elements makes balconies most impractical.

4. A location that offers views of activity and change is ideal. Views and access between a patio and a walkway, for example, can encourage drop-in socializing (see figs. 9–16, 9–17).

- A distance of 20 feet (minimum distance for privacy) to 100 feet (maximum) between unit patios/balconies and activity areas will enable most residents to recognize the presence of activity or identify individuals.

**Spatial Characteristics**

1. Privacy should be maintained for balconies and on-grade patios while providing views of activity. Visual privacy from neighboring patios and balconies may be provided through recessing, screening walls and planting, or a physical separation of approximately 20 feet (see fig. 9–16).

2. On-grade patios should be well defined from public walkways, other units, and activity spaces, but not isolated from views.

- Security and privacy may be particularly difficult with on-grade patios. Patios may be partially or totally enclosed if security is a special concern.

3. Access from on-grade patios to adjacent community outdoor space is desirable; steps should be avoided. A patio with views of and access to a communal walkway, for example, may increase opportunities for meeting and socializing with others who pass by (see “Low-rise Unit Clustering” in chapter 6).

4. Unit patios and balconies should be large enough for several people to sit and maneuver in comfortability. Space for such personal belongings as plants and outdoor furniture is desirable. Size also affects how safe a balcony feels. The Michigan State Housing Development Authority recommends the following minimum dimensions (see fig. 9–18) [5]:

- On-grade patios with one dimension of at least 12 feet and with the length extending the full width of the unit (100-square-foot minimum area).

- Balconies with a minimum clear dimension of 5
5. Minimum clearances for the handicapped are noted below. Additional clearance is always desirable, particularly for older people, who may have difficulty

9-16. Unit patios in this cluster of units face a shared walkway and recreation/laundry center, maximizing opportunities for visiting with neighbors. Visual surveillance enhances security (a particular concern with on-grade patios), while the offsetting of units and a slight separation from the walkway ensure unit privacy. Ample space for personalization is available.

9-17. Patios located for ample sun exposure during cooler months, with 50 percent of the patio area shaded (may be retractable cover) maximize comfort. Views of activity or change are ideal; a viewing distance of 20 to 100 feet maintains unit privacy while enabling recognition of others passing by or general activity.
maneuvering a wheelchair or walker [6]:

- A minimum clear space of 60 by 60 inches is required for a smooth-pivot U-turn in a wheelchair; a clear space of 78 inches in the line of travel is best.
- A clear width of 32 inches (minimum) is required for wheelchair access through a passage such as a door; 36 inches for a longer run, such as a corridor.

6. A design that provides the option for enclosing or screening patios and balconies is desirable, particularly in regions with inclement weather or where insects may be bothersome (see fig. 9–19).

Amenities and Detailing

1. Nonslip, nonglare walking surfaces are very important [see “Pedestrian and Bicycle Circulation,” below].

- Broomed or brushed concrete (stained) is a good surface, as well as brick (if concrete is laid to ensure a continuous surface).
- Exposed aggregate is satisfactory if small river-washed stones of 3/8-inch to 1/2-inch grade (maximum) are used and if stones are not overexposed.
- Tile becomes too slippery when wet.
- Wood decks should be treated; plank spacing at 1/2 inch or less is maneuverable for wheelchairs.

2. Overhead cover for shade and protection from weather is a must for comfort. It has to be wide enough for several people to be seated under cover and in shade. Arbors, partial enclosure, and awnings are a few options.

3. Balcony railings or solid balustrades must be sturdy and provide a comfortable grip rail. Where solid balustrades are used, a height of 24 inches, with an open handrail extending a minimum of 42 inches above the balcony surface, allows for viewing while providing protection. Fifty inches is more desirable (see fig. 9–20) [7].

4. Shelves for plants and other items may encourage personalization. Shelves must be sturdy, as residents may lean on them for support.

5. Lighting is desirable for patios and balconies.

9-18. Unit patios and balconies must be large enough for several people seated, for wheelchair maneuverability (60 inches min. clear for a pivot turn), and for the addition of personal items. Easy access from the kitchen and living room (balconies not to block view) is ideal.
These balconies are easily enclosed with blinds or glass, extending the living space and providing greater climate control (note that the top balcony is enclosed with glass). Standard working drawings for enclosure are provided by the management, thereby ensuring architectural continuity.

Light switches should be located directly inside the unit by the door [see “Outdoor Lighting” in chapter 10].

6. Weatherproof electrical outlets increase convenience.

7. Doorways should have a minimum clear width of 32 inches, with thresholds level or beveled [8 percent maximum slope] [see “Doors and Door Handles” in chapter 10].

**Gardens and Nature Areas**

Ideally, a variety of garden and nature areas should be available for strolling and visual enjoyment. A garden is something that people of all ability levels can enjoy; it provides an important connection to nature and a reason for outdoor use. Gardens for enjoyment may be especially important for less able seniors and those living in developments where personal outdoor space is not available. Nature areas may also provide a place for needed solitude, especially in high-density developments. Some important considerations are outlined below.

**Location**

Garden areas for pleasure, within view from indoor common spaces and/or units, offer increased opportunities for enjoyment. Other garden areas, such as na-
ture areas, may be more distant from the buildings for a quiet walk or exploration—perhaps on a part of the site set aside for its unique natural features (see fig. 9–21).

Spatial Characteristics

1. Different types of garden areas, such as formal gardens and nature walks, provide greater variety for outdoor spaces (see fig. 9–21).

2. Spatial and edge definition of gardens, with a sense of scale and enclosure achieved through planting, and so on, is generally appropriate. Some researchers suggest that, more than younger adults do, older people prefer a formal garden, secure, defined, and detailed space. Variety, however, may accommodate all preferences.

3. Street noises and other obtrusive sounds should be minimized through site planning, planting, berming, and so on.

Amenities and Detailing

1. Garden areas for pleasure should present a rich visual and sensory experience. Vegetation with seasonal color and interesting form, as well as auditory, olfactory, and tactual elements, adds interest and stimulation.

2. Both sunny and shady seating areas in a garden assure comfortable viewing and resting.

3. Paved walkways through garden areas encourage use and exploration, especially by less agile and by nonambulatory residents (see fig. 9–21). Options for walking surfaces that offer greater challenge, such as gravel, may be included, but should not be the only access route (see “Pedestrian and Bicycle Circulation,” below).

4. Detailing for interest and sensory stimulation, such as fountains and pools, is desirable. Sculpture is a good option if high-maintenance pools and fountains are not feasible. Wind sculpture, for example, may provide visual, auditory, and tactual interest.

5. Raised planters allow for easy viewing without stooping. Low-level planters and edging should be avoided; they may cause a fall because they are not easily seen (see “Planters and Planting Beds” in chapter 10).

9-21.

Easy access to a variety of garden areas offering seasonal and sensory interest are ideal for those who depend more upon their immediate surroundings for daily activity. Garden views may also reinforce use of indoor spaces.