

Chapter 6: Case Studies

6.1 Introduction

The purpose of observing and evaluating the outdoor environments at health-care facilities is to test the preliminary design guidelines formulated from the literature. Four case study sites were chosen because they demonstrated a variety of positive and negative design features for outdoor spaces that serve persons with ADRD. Each site was visited at least once for observation and photographs. Where possible, staff was informally surveyed for information regarding the purpose and use of the gardens.

The sites were evaluated according to the following criteria: Were fundamental design criteria for designing outdoor spaces for persons with dementia incorporated in the space? Were additional therapeutic elements incorporated in the space that might aid in promoting the physical and mental well-being and overall quality of life of persons with dementia?

6.2 The Adult Day Services Center Garden

The Adult Day Services Center at Virginia Tech in Blacksburg, Virginia, designed in 1992 by a gerontology faculty member at George Mason University, offers a supportive environment for adults with diabetes, dementia, post-stroke, depression, and Parkinson's disease who are unable to be alone during the day. A goal of the Adult Day Services Center is to maintain the adult's highest level of functioning by promoting physical and mental health. Activities and programs offered at the center provide opportunities for clients to develop confidence and self-esteem through health, social, cultural, educational, intergenerational, therapeutic, and leisure activities.

The Adult Day Services Center has a small garden adjacent to the building which provides opportunities for interaction with plants, wildlife (birds and butterflies), and with other care-recipients and staff. Reminiscing, gardening, bird watching, exercise, social interaction, and horticultural therapy are examples of activities that are facilitated in this outdoor space. The Adult Day Services Center demonstrates that therapeutic outdoor spaces can be incorporated in spaces of almost any size. Displayed below is a plan drawing (not to scale) of the outdoor space at the Adult Day Services Center (see Diagram 1).

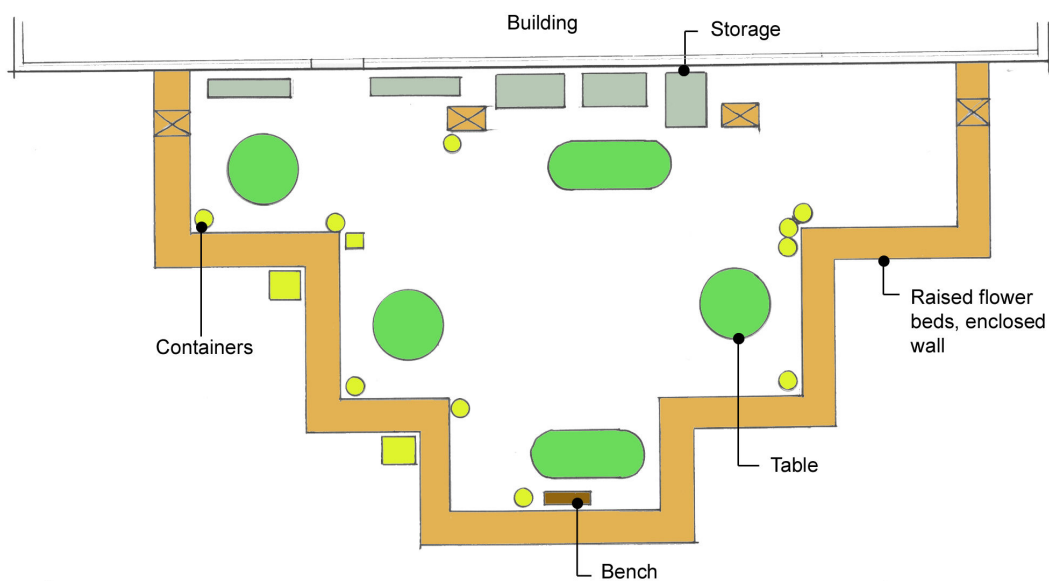
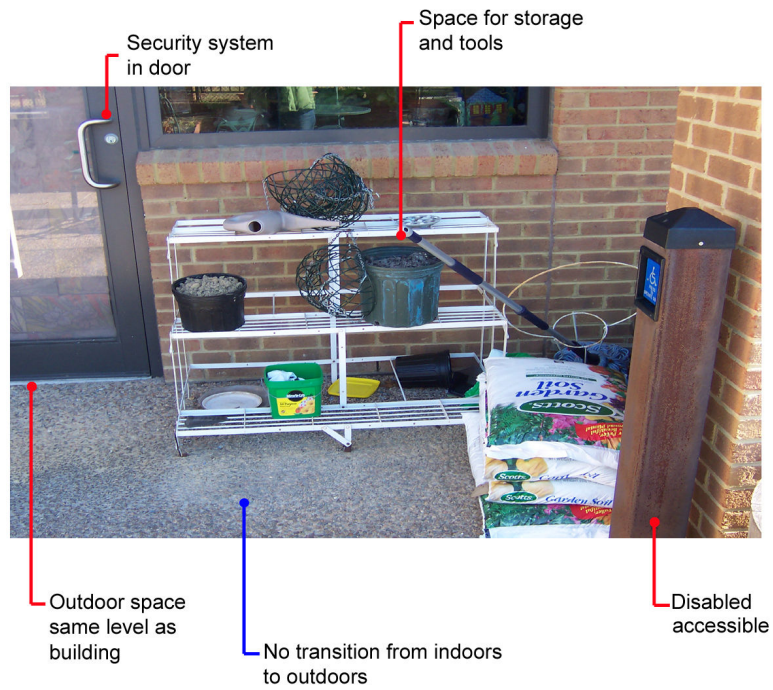
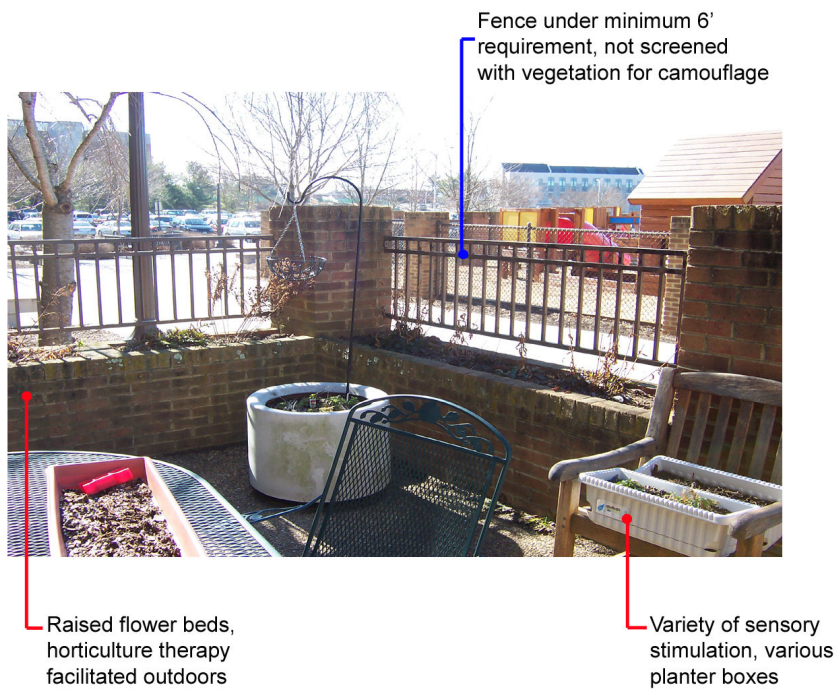


Diagram 1. Plan Drawing of the Outdoor Space at the Adult Day Services

The following photographs illustrate the qualities of the outdoor space at the Adult Day Services Center. The red lines denote high quality features and the blue lines denote either low quality features that need improvement or lack of a particular feature.



Photograph 1. Adult Day Services



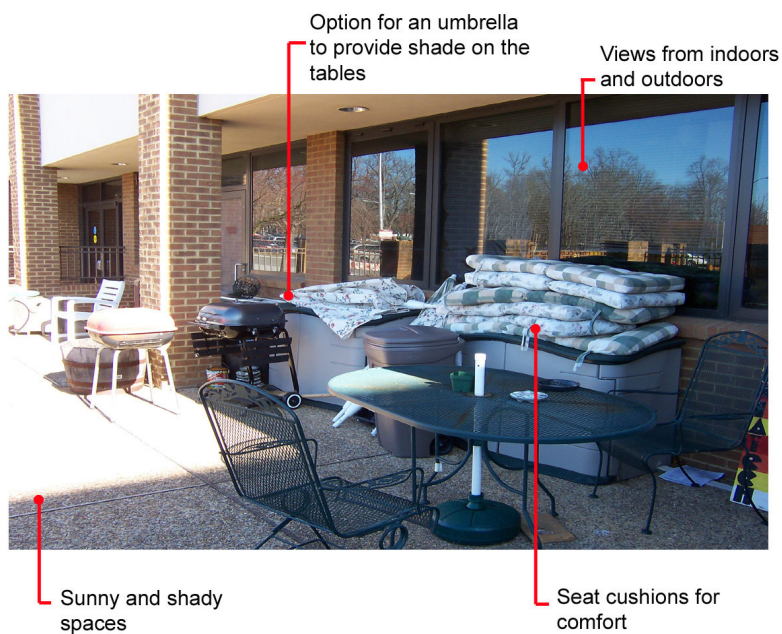
Photograph 2. Adult Day Services



Separate tables and chairs,
armrests and backrests,
smooth rounded edges

Change in paving
material and texture,
non-glare, non-slip,
minimal grade changes

Photograph 3. Adult Day Services



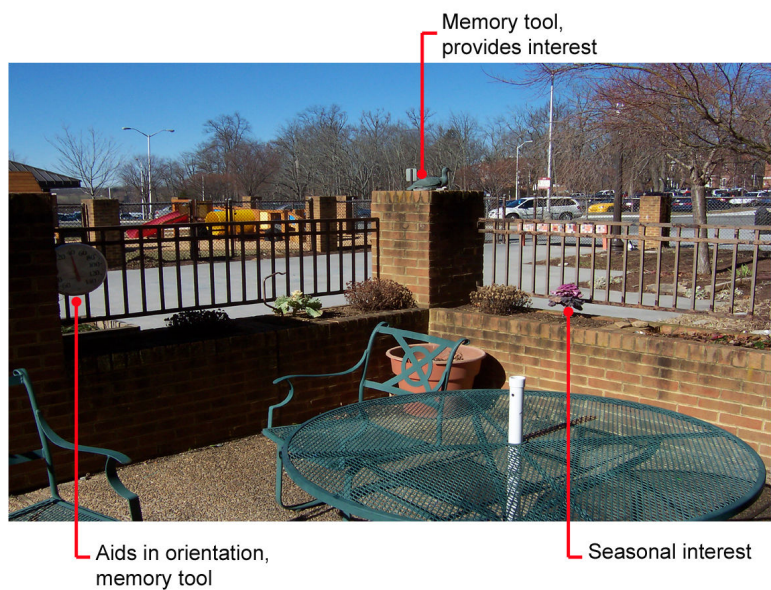
Option for an umbrella
to provide shade on the
tables

Views from indoors
and outdoors

Sunny and shady
spaces

Seat cushions for
comfort

Photograph 4. Adult Day Services



Photograph 5. Adult Day Services



Photograph 6. Adult Day Services

6.3 The C.C. Young Garden

C.C. Young is a multi-service retirement community located in Dallas, Texas on a 20-acre campus overlooking White Rock Lake. C.C Young offers several living options including: residential living, assisted living, dementia care, hospice care, and adult day services. C.C. Young's mission at the Cove Memory Care Center for persons with ADRD is to provide opportunities for its residents to achieve their highest levels of independence with intense activity.

The garden is adjacent to the Cove Memory Care Center building and is specifically meant for use by residents with ADRD. However, according to an administrator, the space is underused and activities are not facilitated outdoors as originally planned. Application of the design criteria suggests that some positive changes could be made, and the space could be used for a variety of activities. Illustrated below is a plan drawing (not to scale) of the outdoor space at C.C. Young (see Diagram 2).

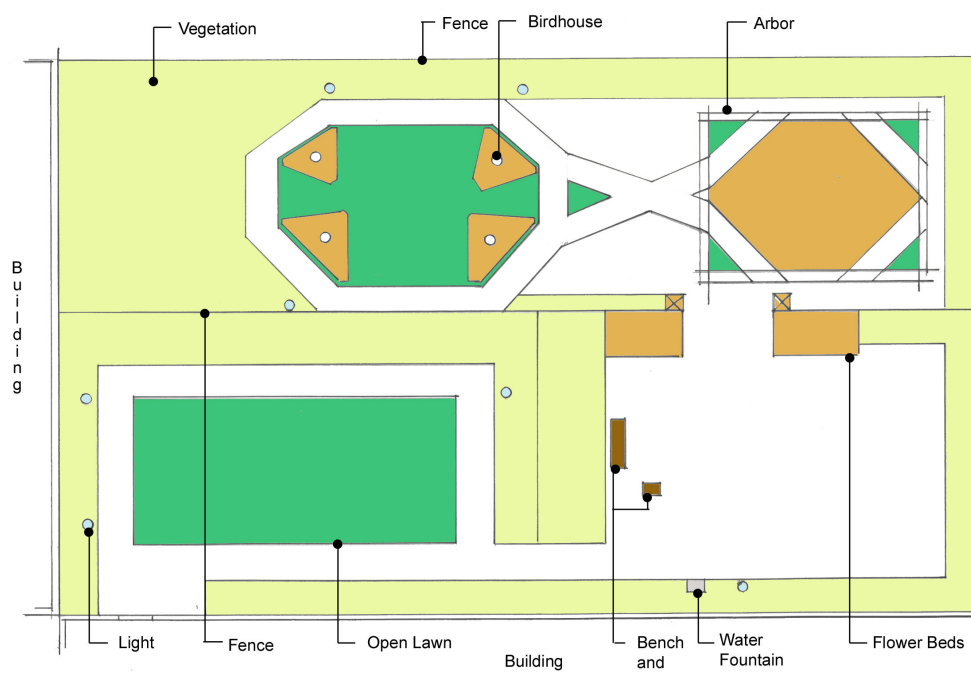


Diagram 2. Plan Drawing of the Outdoor Space at C.C Young

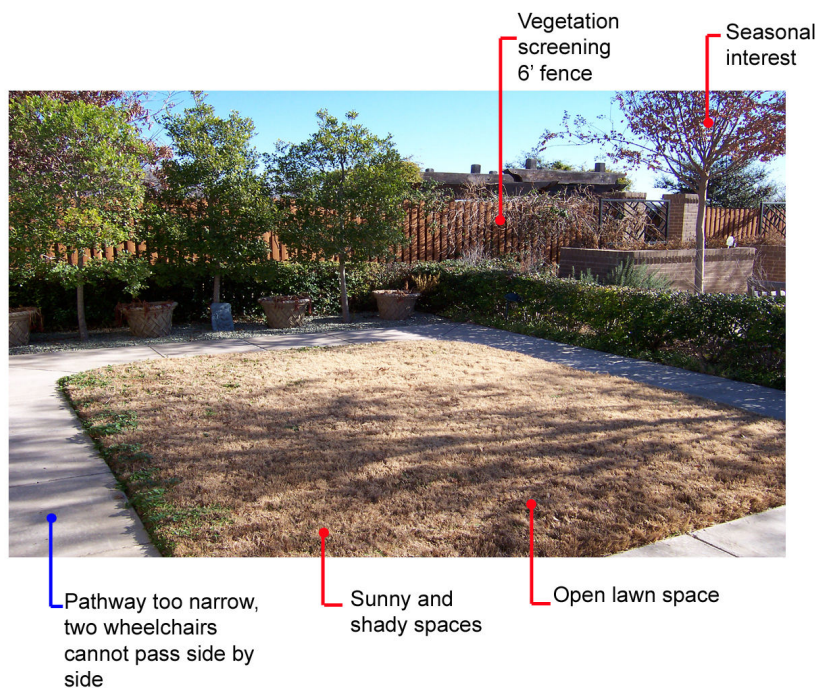
The following photographs illustrate the qualities of the outdoor space at C.C. Young. The red lines denote high quality features and the blue lines denote either low quality features that need improvement or lack of a particular feature.



Photograph 7. C.C. Young



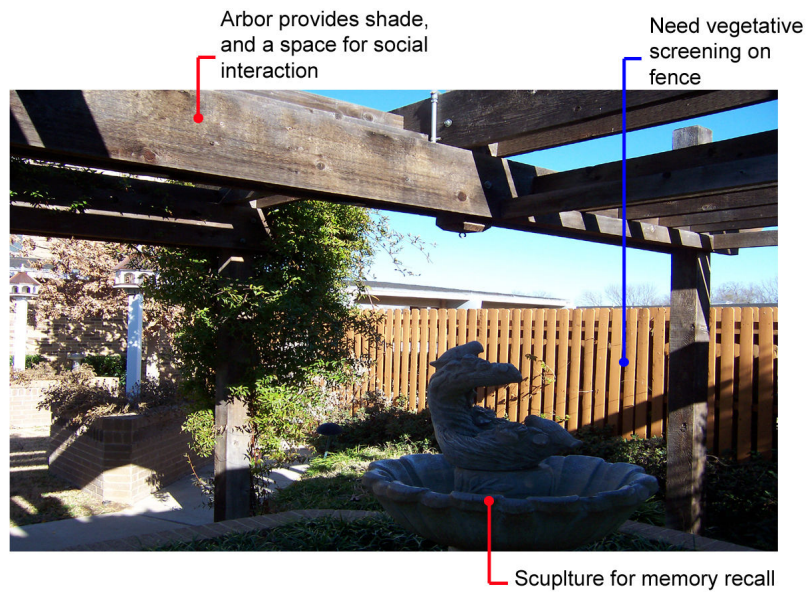
Photograph 8. C.C. Young Photograph 2



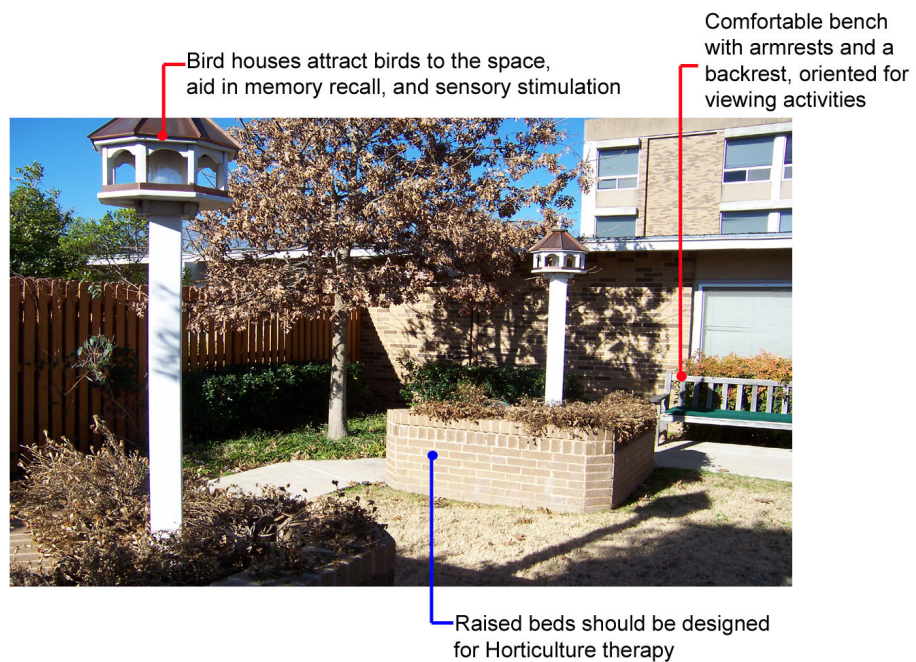
Photograph 9. C.C. Young



Photograph 10. C.C. Young



Photograph 11. C.C. Young

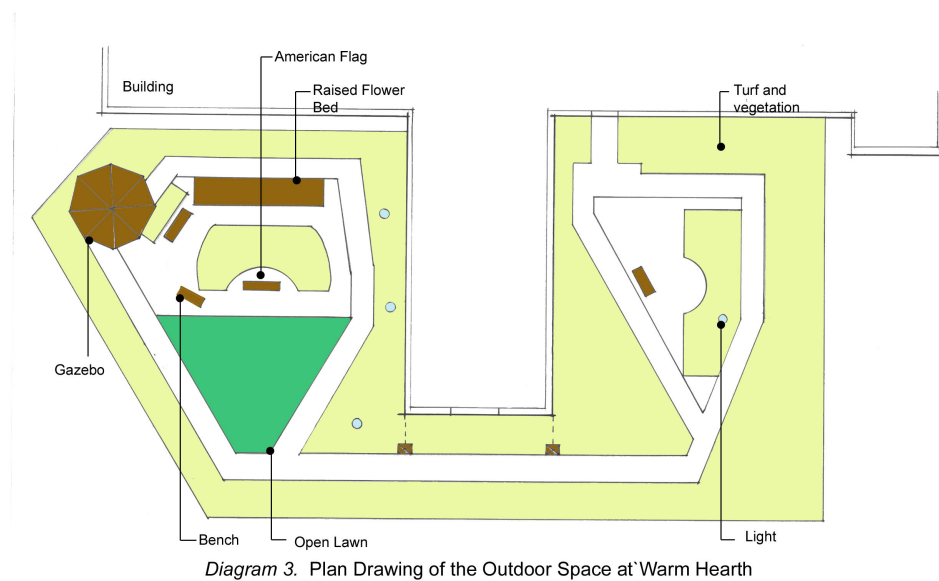


Photograph 12. C.C. Young

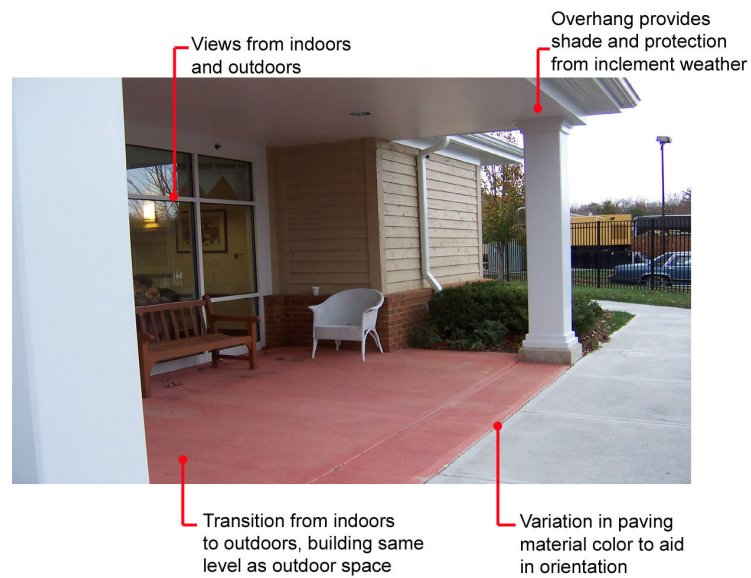
6.4 The Warm Hearth Garden

Warm Hearth Village, located on 220 acres in Christiansburg, Virginia, is a retirement community designed to meet the needs of its residents by providing a continuum of care. Warm Hearth was designed in 1999 by the founder of the dementia-care center, who was a retired faculty member of Virginia Tech's horticulture program. The several living options offered at Warm Hearth include: independent living, residential living, assisted living, dementia care, long-term nursing care, and recuperative care.

The outdoor space adjacent to the dementia-care building is specifically intended for use by dementia-care residents. For security purposes, the residents wear ankle bracelets that set off an alarm as they proceed outdoors. Although the outdoor space offers opportunities for horticulture therapy, exercise, and social interaction, staff indicated that the garden is rarely utilized by staff or residents. Below is a plan drawing (not to scale) of the outdoor space at Warm Hearth (see Diagram 3).



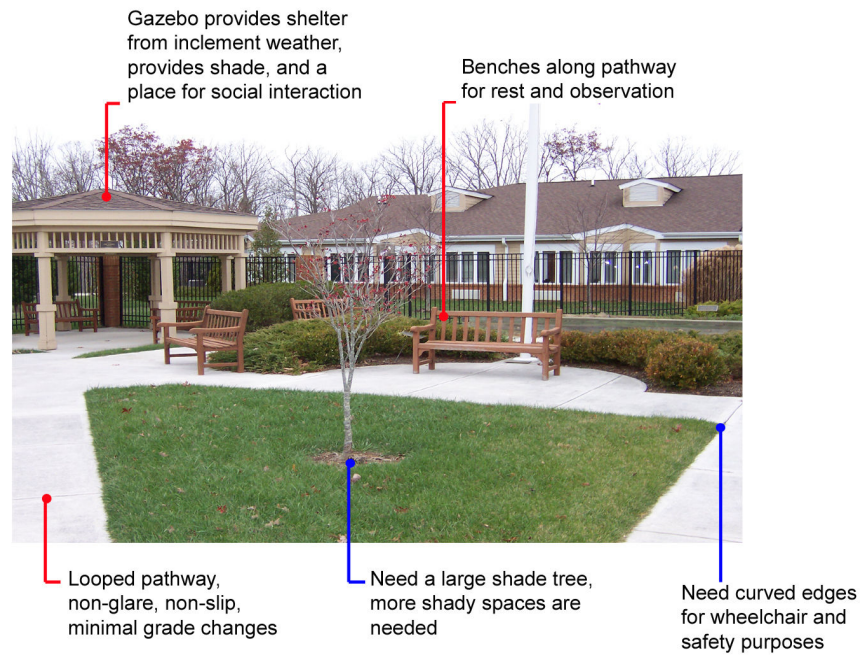
The following photographs illustrate the qualities of the outdoor space at Warm Hearth. The red lines denote high quality features and the blue lines denote either low quality features that need improvement or lack of a particular feature.



Photograph 13. Warm Hearth



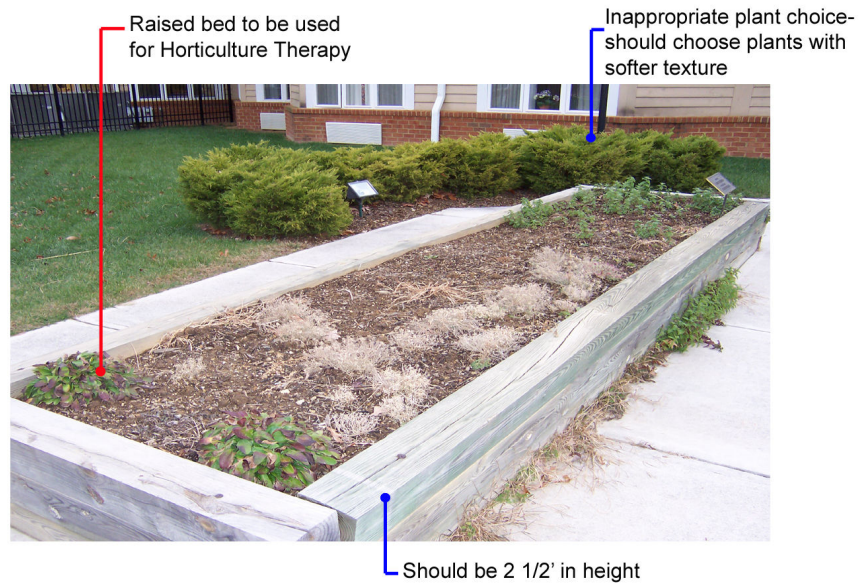
Photograph 14. Warm Hearth



Photograph 15. Warm Hearth



Photograph 16 Warm Hearth



Photograph 17. Warm Hearth

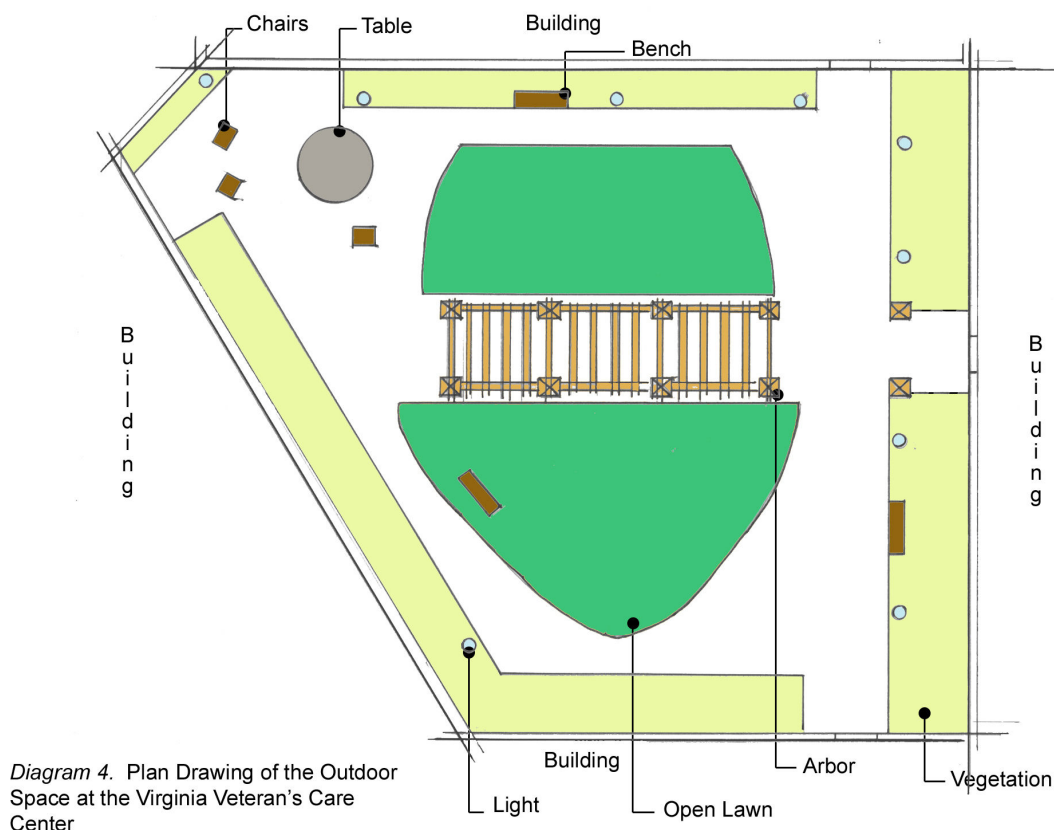


Photograph 18. Warm Hearth

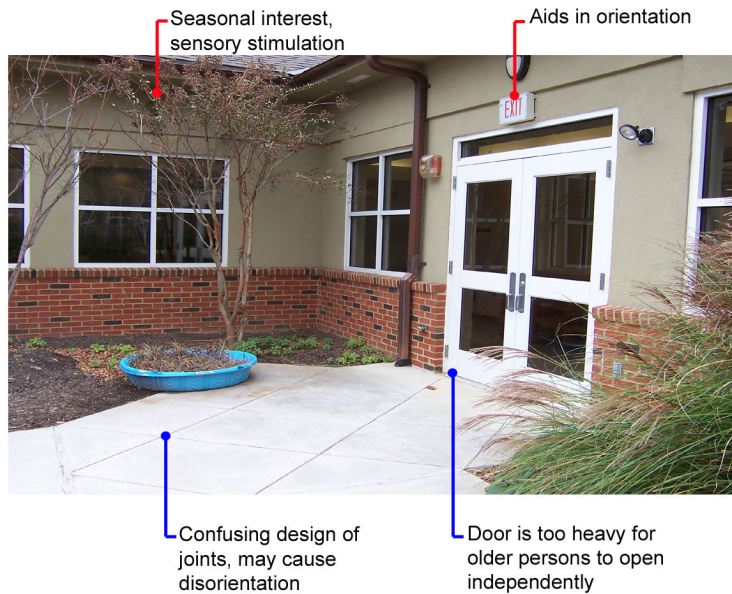
6.5 The Virginia Veteran's Care Center Garden

The final health-care facility evaluated is the Virginia Veteran's Care Center (VVCC) located in Salem, Virginia, neighboring the Veteran's Affairs Medical Center. The VVCC is a facility for long term health-care and a state home for Virginia veterans who are aged or in poor health, and who were honorably discharged from the service.

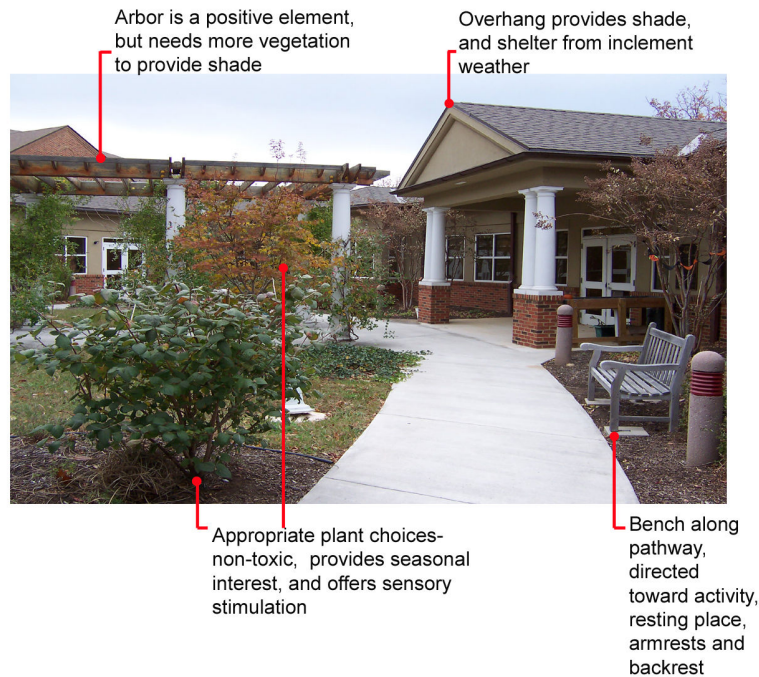
The garden is adjacent to the sitting area inside the VVCC. All residents of the VVCC are permitted to use the space, regardless of their diagnoses'. The space has been used for rehabilitation purposes with post-stroke residents, but according to staff it is underused as a therapeutic environment for daily use by residents with ADRD. Displayed below is a plan drawing (not to scale) of the outdoor space at the VVCC (see Diagram 4).



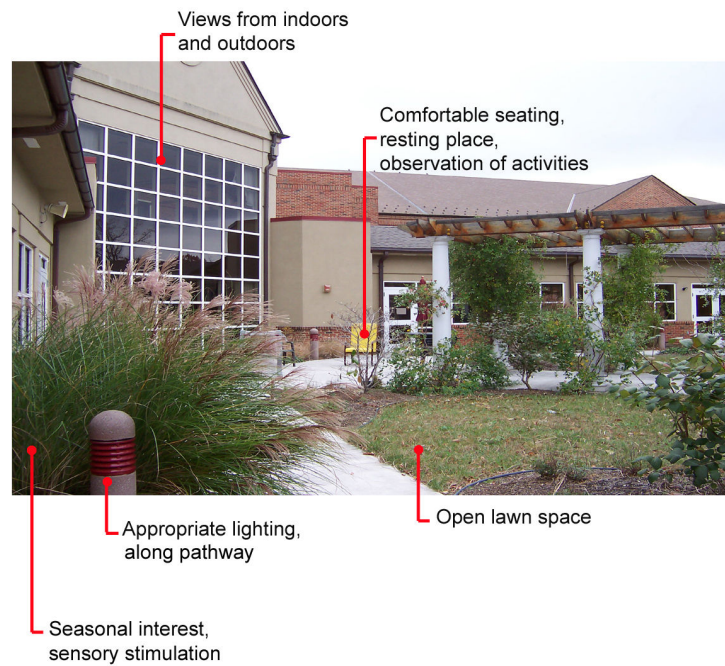
The following photographs illustrate the qualities of the outdoor space at the VVCC. The red lines denote high quality features and the blue lines denote either low quality features that need improvement or lack of a particular feature.



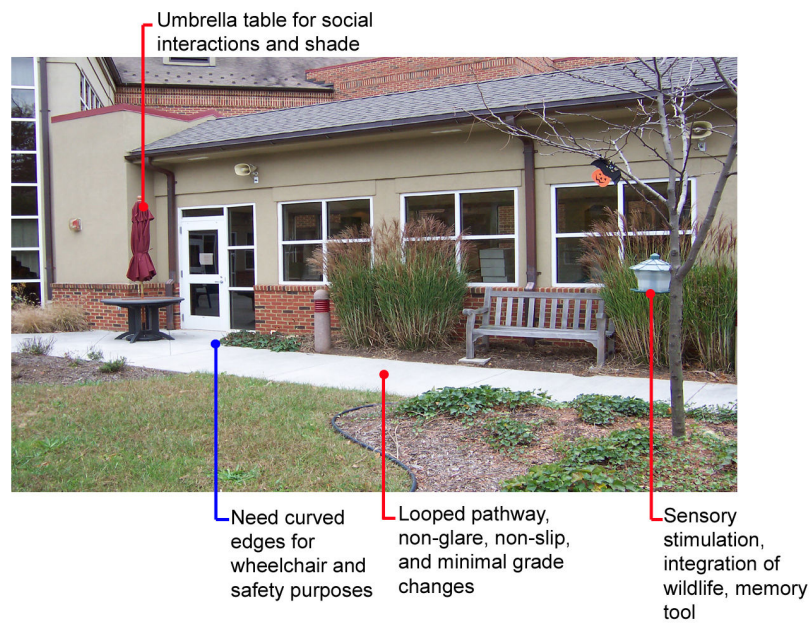
Photograph 19. Virginia Veteran's Care Center



Photograph 20. Virginia Veteran's Care Center



Photograph 21 Virginia Veteran's Care Center



Photograph 22. Virginia Veteran's Care Center

6.6 Ranking the Design Criteria

The criteria were evaluated with a ranking system of *yes*, *needs improvement*, *no*, and *not applicable*.

- *Yes*: The designer has clearly and correctly incorporated the criterion into the outdoor space.
- *Needs improvement*: The designer has incorporated the criterion into the outdoor environment but the element needs enhancement.
- *No*: The designer did not incorporate the criterion into the outdoor space.
- *Not applicable*: The criterion does not apply or is not appropriate to the site.

See Appendix D for the evaluation of the case studies.

Note: The case study sites were observed during the winter period of November to January. However, observations of certain criteria, such as vegetation, were based on prior experience of the site.

6.7 Synthesis

Evaluation of the four health-care outdoor facilities shows some overall consistencies. It appears that some functional design features of outdoor environments for the use of persons with dementia, such as specific requirements for pathways, furniture, vegetation, and security, have been consistently provided within all facilities. In each wander garden, the designer attempted to design an outdoor space which provides a common level of comfort, safety, and accessibility. However, therapeutic elements are missing, and possibly as a result, three of the four wander gardens are rarely used by staff or care-recipients. Following is an evaluation of the application of the design guidelines and criteria at the health-care facilities.

Pathways. For the most part, the pathways at the facilities are designed appropriately. Due to a lack of space, the Adult Day Services Center outdoor space does not include pathways. However, the other three facilities have appropriate pathways, which are looped, do not dead end, have minimal or no grade changes, have consistent color and material, and are paved, non-slip, and non-glare. None of the sites have suitable wheelchair accessibility with a pathway width of a minimum 6 feet wide. The Adult Day Services Center and Warm Hearth are the only two facilities that have changes in texture and/or color of the paving material. However, the results of the phone interviews indicate that changes in texture and/or color of the paving material might not be essential. As for the pathway corners, C.C. Young is the only facility that has curved radius corners at pavement intersections instead of ninety-degree corners, to assist in wheelchair accessibility. However, the treatment is not consistent; some of the corners have curved radii, some do not. For the most part, the pathways at the facilities are designed appropriately, but could be improved.

Spaces. The responses to the interviews and the research conducted rate the importance of sunny and shady spaces highly in therapeutic outdoor environments for persons with dementia. The Adult Day Services Center and C.C. Young provide adequate amounts of sun and shade in their outdoor spaces by directionality of the buildings and vegetation. The buildings at Warm Hearth and the VVCC provide some shade but do not have a sufficient number of large structures that offer shade to prevent glare and provide shelter from the sun.

Another criterion that needs improvement is the transition space from indoors to outdoors. Three of the four facilities either do not provide a transition space or the space

needs improvement. In some cases, there is no change in paving texture or color for orientation purposes, no seating area, and/or no shelter. Warm Hearth's transition space includes an overhang and a change in paving color to aid in orientation. This space allows care-recipients a protected entry to the outdoor space, where they can linger before choosing to explore the remainder of the environment. In summary, the spatial variety of the facilities needs improvement in providing safe, private, sunny, and transitional spaces.

Furniture. There is consistency among the health-care facilities with regard to type and use of furniture available in the outdoor spaces. Each facility offers seating (including armrests and backrests) along the pathway, positioned for observation of activities. Warm Hearth and the VVCC should consider providing cushions for comfort, as the Adult Day Services Center and C.C. Young do. Overall, the furniture at these facilities is appropriately used.

Vegetation. The plant material chosen at the facilities needs improvement. Each of the designers appropriately chose non-toxic plants, but the incorporation of herbs would provide additional sensory and memory stimulation to the care-recipients. The facilities also lack plant varieties that offer seasonal interest. By including vegetation that has seasonal interest, horticulture therapy, which is capable of stimulating the person's senses, can be facilitated year round, weather dependant. A significant issue at the Adult Day Services Center and Warm Hearth is the unscreened fence. Without vegetation to screen the fence, the care-recipient may become distracted by activity outside of the garden or feel confined and act out aggressively. Additional thought should be put into plant choices at the various sites.

Views. As previously mentioned, the Adult Day Services Center does not have an appropriate fence securing the outdoor space. In addition, the fence also does not meet the minimum height requirement of 6 feet. This is a necessary requirement for therapeutic outdoor spaces to deter escape of dementia care-recipients. However, the Adult Day Services Center and the VVCC do have full visibility in their spaces, which C.C. Young and Warm Hearth lack. The outdoor spaces at C.C. Young and Warm Hearth are separated into two spaces by a fence or a building, and thus deter views across the entire site. All facilities have views from inside and outside the buildings.

Security/Safety. Issues related to the safety of persons with dementia in an outdoor environment are monitoring, lighting, and handicapped accessibility. It is important that care-recipients are not left unattended in the outdoor space. Only the Adult Day Services Center and Warm Hearth have obvious monitoring systems. All of the facilities have adequate lighting and have moderate to good handicapped accessibility.

Shelter/Shade. Though the criterion for shelter/shade is not mandatory for therapeutic outdoor spaces for persons with dementia, it is a desirable asset. Warm Hearth is the only facility that incorporates a gazebo in its outdoor space, and the Adult Day Services Center and C.C. Young are the only facilities that provide adequate shade. The health-care facilities in this study should consider incorporating elements, such as a gazebo or solarium to provide the necessary shade needed for comfort and protection.

Memory tools. Landmarks and recognizable materials are essential to outdoor spaces because they provide memory recall and orient persons with dementia. All of the sites contain materials that may stimulate response and aid in orientation, but more

elements should be incorporated for additional sensory stimulation. Elements that may not be considered essential but present the adult with the opportunity for stimulation and memory recall, such as a water feature or sculpture, are not offered in any of the case study sites, but they should be.

Recreation/Therapy. This category, including horticulture, music, and occupational therapy, game tables, birdbaths/feeders, and sensory stimulation, needs improvement at each of the four sites. The Adult Day Services Center is the only facility that frequently uses the raised flower beds provided. The VVCC facilitates horticulture therapy outdoors but does not have raised beds to work with. Horticulture therapy provides sensory stimulation, memory recall, social interaction, and employs fine and gross motor skills; spaces for horticulture therapy should be included in the design of outdoor environments for persons with dementia. Each of the sites can improve by offering greater stimulation and interest.

When looked at as a whole, the designs in all of the case study sites appear generic. For the most part, the designers provided a basic level of comfort, functionality, and amenity, but overlooked the therapeutic potentials that may positively affect care-recipients. All of the outdoor environments were designed within the past fifteen years, during which time much of the research regarding outdoor environments for persons with dementia was published. This leads to the question of whether this literature was available to designers and if so, whether the literature addressed therapeutic modalities, in addition to functional design features.

6.8 Summary

The results of the case studies can be categorized into three groups: all of the facilities were consistently ranked as *yes* for having a specific feature, all of the facilities were consistently ranked as *no* for lacking a specific feature, or all of the facilities were ranked as *needs improvement* for a specific feature. Those features that were present in all of the facilities are:

- Looped pathways
- No dead end
- Minimal/no grade changes
- Consistent color and material
- Paved, non-slip, non-glare pathway
- Seating along pathway
- Position seating for observation
- Easy to move furniture
- Benches have armrests and backrests
- Non-toxic plants
- Plants that attract birds and butterflies
- Open lawn area
- Views from in and out
- Handicapped accessibility
- Resting spots
- Building is the same level as the outdoor space

The criteria related to the pathways, furniture, vegetation, views, and security/safety guidelines are all basic functional design features of the landscape. Plants that attract birds and butterflies are the only consistently applied therapeutic design features. These results confirm that therapeutic design features, which may improve physical and mental well-being and quality of life of persons with dementia, are not consistently being implemented into landscapes for these users.

The majority of the functional design criteria in the design guidelines are incorporated in all of the facilities' outdoor spaces. The interview participants ranked the

majority of these design criteria as essential and few as somewhat essential. This raises the question of whether functional design criteria need to be included in the design guidelines since the designers who created the gardens clearly were aware of the need to incorporate functional features in their designs. Further research may respond to these questions by sampling a larger number of facilities and testing whether health-care designers have adequate knowledge of the basic functional design features that are necessary in outdoor environments for persons with dementia.

Criteria that were consistently ranked as not present in all the facilities include:

- Minimum 6' wide pathway
- Footrests and side tables
- Solarium
- Signs with symbols

Interview participants' perspectives on these criteria vary, indicating that they may not be significant issues in the design of outdoor spaces for persons with dementia. If so, they may not need to be included in the design guidelines, and may not be necessary in improving care-recipients quality of life.

The criteria that were consistently ranked as *needing improvement* are as follows.

- Interest along pathway
- Public and private spaces
- Soft textured vegetation
- Edible vegetation
- Seasonal qualities
- Landmarks
- Wildlife
- Recognizable materials
- Sensory stimulation

The interviewees ranked these criteria, which address therapeutic features, as somewhat essential to essential in improving the quality of life of persons with dementia. Most of these features would enhance any garden. More than likely, these features were present

in the case study sites because they are commonly used in well-designed gardens, not necessarily because they are therapeutic design features targeting persons with dementia. This raises the question of whether design professionals fully understand the benefits of incorporating these therapeutic elements into the landscape.

6.9 Conclusions

It is important to recognize the consistencies among the design guidelines, the results of the interviews and surveys, and the case studies. Most of the functional features present in the case study gardens were considered essential by interviewees. Most of the functional features that were not present were ranked as somewhat essential by the interviewees. This raises questions as to how critical the features that were not present are to the effectiveness of improving physical and mental well-being and overall quality of life of persons with dementia.

The results of the interviews, surveys, and case studies indicate that professionals in landscape architecture and gerontology may not fully understand the therapeutic needs of persons with dementia in outdoor environments. This raises many questions: Are the therapeutic benefits of outdoor environments for persons with dementia fully addressed in the literature? Or is more quantitative research needed to confirm the benefits of therapeutic outdoor environments? Is there a need for more empirical study in landscape architecture regarding person-environment fit with dementia care-recipients? Further research with larger sample sizes of participants and facilities is necessary to gain a more accurate indication of the validity of the design guidelines. The design guidelines produced by this study should provide a departure point for further research.