# Designing outdoor spaces for people with dementia







UNIVERSITY OF STIRLING



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# Foreword

From the Australian bush, to the mountains of Scotland, we understand the need for and celebrate the pleasures of the outdoors, as it enhances our lives and well being. The outdoors is where we can go to breathe fresh air, interact with wildlife, or relax. Freedom to access outdoor spaces is a fundamental human right.

So in an ideal world, this book would not be needed. But when services are developed for people with dementia these rights are often ignored. In construction projects we often see access to the outdoors being restricted or denied as a cost cutting issue, or because of lack of foresight and planning. This results in long term problems for people living with dementia, that could be preventable. Outdoor access can reduce agitation, restlessness, and other behavioural symptoms that cost staff time and may lead to overuse of medication, both of which can have expensive and unpleasant consequences.

This book addresses the big question of how we design and deliver the right types of outdoor spaces for people with dementia. It demonstrates many positive examples of good practice from across the globe in the design and use of outdoor spaces. It challenges decision makers and designers to think about the care of people with dementia and those who care for them.

Books are sometimes described as "groundbreaking"... and this one is certainly revolutionary in that sense. But it also carries a plea on behalf of all people with dementia to everyone who commissions, designs, or builds for them – keep dementia and its needs uppermost in your mind. Before you even break the ground, remember the outdoor spaces. And give us space to enjoy the open air.

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# **Chapter 2** Going outside is essential for health and wellbeing

### Annie Pollock and David McMair

Whilst there is little research on the benefits of being outside, specifically in respect to people with dementia, there is a lot of research that shows the benefits for the population at large, both of spending time outdoors and of having a good view out from a building.

When we consider older people, most will have health problems of some sort, usually associated simply with ageing. However, for those with the added disability of dementia, which affects mainly older people (5% of over 65s and 30% of over 90s), it is vital that their general health is as good as possible to allow them to deal positively with this incurable illness.

This chapter looks at the advantages of having suitable outdoor areas that promote good health for people with dementia, who can use at will, and for the staff that care for them.

#### Background

The concept of having gardens within healthcare settings dates back at least to Greek and Roman times and was seen as part of a patient's therapy. In Roman military hospitals, a courtyard was the main feature and fresh air and exercise were central to recovery. Hospices in the Middle Ages had gardens and/or vineyards. In the Renaissance, public hospitals with central courtyards were standard.

In the late 19th century, hospitals experienced a loss of garden and open space even though Florence Nightingale said:

"Second only to fresh air... I should be inclined to rank light in the importance for the sick. Direct sunlight, not only daylight, is necessary for speedy recovery... I mention from experience... in promoting recovery, the being able to see out of a window, instead of looking at a dead wall; the bright colours of flowers; the being able to read in bed by the light of the window close to the bed-head.

It is generally said the effect is on the mind. Perhaps so, but it is not less so upon the body on that account."

Today, landscape in the modern health-care setting is all too often relegated to small courtyards at the entrance or within the building to provide light to surrounding rooms and corridors but to which there may be no public access.

Today's generation of people with dementia grew up in an era when there was a general belief that fresh air was health-giving and, indeed, it is true that sunlight kills some types of bacteria and colds and flu-like viruses. These are also spread less easily outdoors than in internal spaces because of the superior airflow.

In that immediate postwar era:

- central heating was rare, yet people often slept with their bedroom windows open the year round
- babies were frequently put outside

in their prams in cold weather, well wrapped, to benefit from the fresh air

- people did their shopping for food every day, usually on foot or bicycle to local shops, as few people owned a refrigerator or a car
- gardens or allotments were often used to grow vegetables or even to keep chickens
- hospitals often had balconies or outdoor areas where patients were encouraged to sit to access the 'health-giving' fresh air and sunshine. Sadly, few modern hospitals now have such a facility.

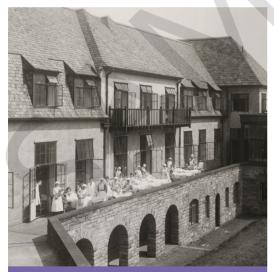


Fig. 2 Balcony at the Elsie Inglis Memorial Pavilion, Edinburgh, c. 1935

Yet in many facilities for people with dementia, these same people, who are usually in their late 70s, 80s or 90s, often have little or no access to the outdoors and to fresh air. They lack physical activity, are frequently lethargic, are physically frail, have poor sleeping patterns and sometimes show challenging behaviour. A report by the Mental Welfare Commission for Scotland (2009) noted that over half of all people in the care homes they looked at never went out of the care home and a further 25% rarely went out. They also found that whilst 52% of care homes did have gardens that were accessible and safe, they were not necessarily suitable for people with dementia. In addition, the majority of people did not get the chance to use the gardens and outside areas regularly.

England's Department of Health in its publication 'Care Homes for Older People: National Minimum Standards' (2003) notes as a minimum standard:

"There is outdoor space for service users, accessible to those in wheelchairs or with other mobility problems, with seating and designed to meet the needs of all service users including those with physical, sensory and cognitive impairments" and that "Opportunities are given for appropriate exercise and physical activity; appropriate interventions are carried out for service users identified as at risk of falling." It also notes "You will be able to move around easily in the house and its grounds."

A study (Hoe, Hancock, Livingston & Orrel, 2006) on the quality of life of people with dementia in residential care homes concluded that:

"Despite most having severe dementia, residents' views of their own quality of life were strongly linked to their mood, suggesting that improving mood would increase quality of life."

"Care staff and health professionals should be aware that the quality of life of people with dementia in

# **PART 2** CIVIL LIBERTY AND CULTURAL CONSIDERATIONS

# Chapter 3 Going out – rights and responsibilities

### Donald Lyons

In 2006, the National Association for the Provision of Activities for Older People (NAPA) raised an important issue that was widely reported in the media. Prisoners in the UK must have at least one hour of fresh air each day. People with dementia in care establishments often get much less access to fresh air than this. Do they not have a right to at least as much fresh air as a prisoner?

The Mental Welfare Commission for Scotland exists to safeguard the rights and welfare of people with mental disorders, including dementia. We visit individuals in a variety of care settings, can investigate deficiencies in care and give advice on applying best legal and ethical principles to people's care and treatment. We decided to look into whether people with dementia had access to fresh air when we visited hospitals and care homes. All too often, we found that they did not.

We looked into the care of people with dementia in NHS continuing care wards in Scotland in 2007 in *Older and Wiser,* (Mental Welfare Commission for Scotland, 2007). Of 16 wards we visited, only nine had access to enclosed garden areas. Seven of these were designed to be suitable for people with dementia. We looked in detail at care plans for 29 people across these 16 wards. We found that only 12 of those 29 people had been outside during the previous three months. Nine people had not been out at all since they were admitted.

When we looked at care homes for people with dementia, we found a similar picture. In our joint report with the Scottish Commission for the Regulation of Care, *Remember, I'm Still Me* (2009), we found that just over half of a sample of 30 care homes had safe and accessible gardens.

They were not necessarily 'dementiafriendly' and not necessarily used. Over half of the people whose personal plans we studied never went out. The few people who went out regularly were relying on family and friends to take them out.

We found that care staff did not think creatively enough about the use of people's own money. There are many legal ways to use people's money for their benefit, even after they lose capacity to manage their own money. Care staff were often unaware of the options available. While they have the duty to provide much of the person's care from within their resources, they should look at ways to use people's own money to improve their quality of life. This could include arranging trips to places of interest for individuals or groups of people with a common interest.

We found some good practice. Some care homes helped people to use their own money to pay for taxis to places of interest and used money from fundraising to organise outings. Recently, we found a care home where there were several male residents with dementia who used to enjoy car maintenance. The staff put an old car in a secure garden area where the men could enjoy tinkering with it. Unfortunately, we found that good practice was the exception. Far too many people with dementia in care establishments were denied access to outside facilities and to the community.



garden area

Why is this important? Do people with dementia have the right to fresh air and activity? Do service providers have the duty to provide this? Our reading of human rights law says yes. Also, the principles of legislation on mental health and incapacity in Scotland impose duties on care providers. While I use Scots law as an example of rights-based legislation, the approach we advocate is consistent with human rights legislation and is, we argue, no more than people with dementia deserve and should expect. Human rights law confers rights on individuals and duties on public authorities. Everybody has the right to liberty under Article 5 of the European Convention on Human Rights (ECHR). While "persons of unsound mind" may be deprived of their liberty, this must be achieved using a procedure prescribed by law and the person must have the right of appeal to a competent court. Surely a person who is deprived of fresh air is being deprived of liberty to some degree? The same argument applies to people who used to enjoy activities within their community and are now prevented from doing so. If people have the capability to enjoy being outside and active, and are prevented from doing so, this would not be compatible with Article 5.

Article 8 of ECHR asserts the right to privacy, dignity and family life. Is it dignified to be confined to indoor life? Are people being prevented from enjoying activities they might still be capable of enjoying with family and friends? Our findings suggest that care providers may not be providing care that affords people this right.

The Nuffield Council on Bioethics (2009) published a report on a wide variety of ethical issues in the care of people with dementia. Among other issues, the report considered the issue of restraint. Care establishments for people with dementia need to consider restraint in its broadest sense. It is more than direct physical or mechanical restraint; it also involves locks, passive alarms, sensors and surveillance. The report identifies general issues that must be considered within the legal frameworks in place. It recommends that all UK regulators should provide guidance similar to the Mental Welfare Commission for Scotland's Rights, Risks and Limits to Freedom (2006).

# **Case Study 2** The gardens at Plaisir Villa Ichikawa

### Yuji Okubo

### Green roof and façade greening in Japan

Securing green spaces within Japan's major cities and suburbs is problematic. As a result, there is insufficient area within which to grow trees, grass and flowers, and the problem of the 'heatisland' phenomenon<sup>8</sup> grows evermore serious year after year. Green roofs improve the urban environment and prevent buildings from retaining excess heat, and so demand for greening is heightening yearly. In Japan, the total national green area on rooftops and walls increased roughly tenfold between the years 2000 and 2005, and green roofing continues to expand primarily among major corporate and government buildings. On the other hand, the spread of green roofing among multi-tenant and multi-unit apartment buildings has lagged behind due to the sizeable burdens that start-up costs and maintenance impose.

With green roofing becoming obligatory in the Tokyo metropolitan area in 2001, local authorities have also recently endorsed green roofing and roof garden installations. Within major cities and suburbs, the 'Green Roof Grant-in-Aid' has been set up to encourage the green roofing of buildings, and the number of local authorities providing partial coverage of construction costs appears to be on the increase. The upper limit to these grants for a single building is roughly 500,000 yen (US \$6400), though apparently applications for grants are increasing year by year. Recently, the number of nursing homes constructing green roofs and rooftop gardens has also started to increase gradually. Rooftop gardens have become an important element in residential care, particularly for the nursing homes of major cities, as they allow elderly persons who have difficulty going outdoors to have some gentle contact with greenery, and are useful as healing spaces and for horticultural therapy.

# Why green roof and roof gardens have increased

Reasons for the recent increase in green roof installations:

- root-resistant countermeasures are being administered so as to prevent root-damage to buildings
- it has become possible to secure water storage and a drainage layer to heighten the soil's air-permeability
- lightweight soil has been developed that is easy to use and puts less strain on buildings
- grant-in-aid systems for green roofing have been established.

These multiple factors have made the installation of roof gardens possible.

However, there are several hurdles relating to the maintenance and management of rooftop gardens that must be overcome. The nursing homes and group homes that I visited unanimously complained of the difficulties involved in maintaining and managing rooftop gardens.

8 The urban heat island phenomenon traps heat in thermal mass like concrete and black roads, which absorb, store and then re-emit this heat to the urban air at night. Temperatures of urban air domes can range up to 10-16C (50-60F) warmer than the surrounding countryside. Ref: http://www.urban-climate-energy.com

These difficulties were, more specifically, issues of who would care for the plants and how such costs would be covered. Of the facilities I visited, those that were overcoming such issues were either large-scale nursing homes which have more than a hundred staff, fee-charging homes, or homes in even a small-scale, yet able to secure volunteers to assist with horticulture.

Though a comparatively small-scale example, at this point I will introduce the case of Plaisir Villa Ichikawa which boasts a splendid Japanese-style garden and rooftop garden.

#### Japanese-style garden of Plaisir Villa Ichikawa

Plaisir Villa Ichikawa is about 20 minutes away from Tokyo in Ichikawa Suwada of Chiba Prefecture. Suwada, where the home is located, is an historic town having formerly served the region as a political and cultural hub. As a result, many historic artefacts (buildings, temples and literary inscriptions) can still be found close to the home, as well as many high schools and universities.

Plaisir Villa Ichikawa was constructed in 2005 as a fee-charging nursing home totally outfitted with individual rooms.

The home is a three-storey reinforced concrete structure, which houses 60 residents of which around 20 residents currently require care for dementia.

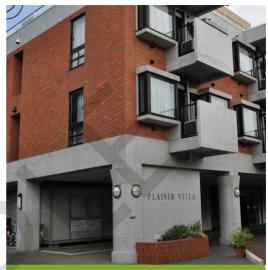


Fig. 17 The home is a three-storey reinforced concrete structure, which houses 60 residents of which around 20 residents currently require care for dementia

One of the wonderful aspects of the institution is that it is home to a garden and rooftop garden created by Hirokazu Kaku of the Japan Branch of the Royal Horticultural Society. Once through the entranceway, the lobby opens out before you and leads through to a combined restaurant and multi-purpose hall. The hall overlooks a beautiful Japanese-style garden that makes use of green slopes.



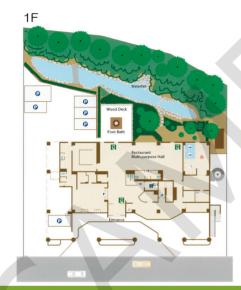


Fig. 18 The garden layout (refer to appendix 1 on page 212 for enlarged version)

The garden is accessible from the hall, as there is no boundary between the two, and setting foot onto the wooden decking outside, one can feel the colours of the all-seasons garden in one's very skin. The deck is also installed with a footbath, and the sight of the turning leaves and snow-scenes can be enjoyed during the cold of autumn and winter while warming ones feet in hot water. The footbath stimulates blood flow, and has a rehabilitative effect while relaxing the spirit. Rehabilitation using the footbath is performed every morning.



Fig. 19 Rehabilitation using the footbath is performed every morning

A stream about one metre in width flows through the centre of the garden, into which water pours from a waterfall constructed on a green slope, about 5 metres high. Surprisingly, this artificial waterfall was created and appreciated by the owner who formerly lived on the land. The waterfall circulates water to the stream, and provides oxygen to the vividly coloured koi carp therein. The feeling the view instills is truly akin to that of gazing at a Kyoto garden.

### PART 3 DESIGN GUIDANCE

# Chapter 6 Site and climate considerations

Annie Pollock, Richard Pollock, Clifford McClenaghan Consultant: Fan Wang Illustrations: Liz Fuggle

This chapter looks at environmental considerations in relation to the development of a site. These are relevant to all sites where the outside space is important, irrespective of the type of development. Everyone benefits from well-designed outdoor space, but for elderly people and in particular those with dementia, the external environment must be right, climatically as well as in detailed design terms, to encourage them to use it.

In a study in the USA of long-term care facilities with outdoor areas (Cohen-Mansfield, 2007) in response to the question, "Is the outdoor area used as much as it could be?" as many as 62% of the facilities responded "no". Over 30% noted "weather-related problems (e.g. too hot, too windy or too sunny)" as being a reason for non-use; of course in cool temperate climates, cold and rain are the more likely reasons for non-use.

Increasing pressure for land to be developed, especially in urban areas, means that available sites are often either considered as 'brownfield' (i.e. sites that have previously been developed for some use), or as land that has previously been considered undesirable to develop. Attractive, level 'greenfield' sites (i.e. sites that have never been developed) are few and far between. Land prices usually mean that the site has to be fairly densely developed; planning requirements for parking, fire access etc, often further reduce the areas of land that can be made into useful and recreational outdoor space.

The result of this is that architects are frequently faced with a difficult task in planning a site to maximise its use in terms of bed spaces. This makes it vital to assess the site at a very early stage to allot the best areas for outdoor use and areas that are large enough to provide viable 'outdoor rooms'.

The early involvement of a landscape architect will enable advice to be received on how best to ensure a good quality external site environment as the architect develops the building design. In assessing the site's attributes, the following will normally be looked at in detail, with sustainability as an overarching consideration:

- the building form and layout and its relationship to outdoor space
- climate and microclimate
- energy efficiency
- features within and outside the site that may affect it, e.g. buildings, trees, landform, noise
- flood risk, soil and drainage in relationship to getting plants grow healthily.

The following notes give basic advice, but do not take the place of detailed calculations to establish the microclimate around a proposed building and its open spaces. Further advice can be found in the references listed at the end of this chapter.

### 1. The building form and its relationship to outside space

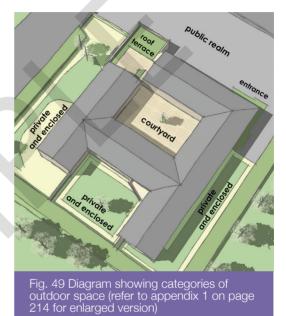
To avoid confusion and repetition in this chapter, we deliberately avoid the use of 'north' or 'south' and instead use 'sunfacing' or 'not-sun-facing'. Therefore in the northern hemisphere, 'sun-facing' means south and 'not sun-facing' means north. Conversely in the southern hemisphere, 'sun-facing' means north and 'not sun-facing' means south.

The building footprint is often dictated, in part at least, by financial considerations and the need to put as much accommodation on the site as possible. Yet it should, ideally, arise out of equal consideration of the site, brief, use and user requirements, climate/microclimate and planning considerations as well as the business plan and funding model.

Each type of external space needs to be carefully considered in relation to its use and its microclimate. If the microclimate is not suitable, the space will not be successful. These external spaces include:

- **the public realm:** the 'public' environment around the care home, such as the roads, parking areas, the main entrance and any other 'public' landscaped space
- **courtyards:** internal open spaces surrounded by the building providing a safe secure environment

- private and/or enclosed gardens: partially enclosed by the development and walls or fencing
- **spaces at upper level:** balconies, terraces and roof gardens.



All of these open spaces associated with the built form provide an 'outdoor room' of some kind. The 'public realm' sets the scene for those arriving at the building and provides light to the rooms facing onto it. Courtyards, roof terraces, and gardens partly enclosed by the building will enable the building layout to accommodate more rooms with windows and attractive views facing into them, thereby allowing those who may be confined indoors to see out and feel closer to nature.

Well-designed 'outdoor rooms' can provide:

- warmth and sunlight, coolness and shade
- shelter from wind (particularly in colder climates where wind chill can lower ambient temperatures) and welcome breezes in hot climates

## **Case Study 5** Back Porch Garden, Medford Leas, Medford, New Jersey, USA

### Jack Carman

"I like to think it is Mother Nature that gives everyone an equal space to be in the garden," said Jane Weston, Director of Marketing and Community relations at Medford Leas.

Medford Leas, a Quaker-related, accredited, continuing care retirement community, was founded in 1971. The retirement community is comprised of 168 acres and located in southern New Jersey near Philadelphia. It offers a broad range of residential housing options from independent living, to assisted living, to skilled nursing and dementia care.

The residential community has also been developed as an arboretum, the Lewis W Barton Arboretum, which is one of the first of its kind. The arboretum is comprised of landscaped grounds, courtyard and patio gardens, wildflower meadows, and natural woodlands, which are administered by the residents of the community.

Access to the outdoors has been an essential part of the community and the residents are very focused upon nature and the environment. Gerry Stride, Resident Life Coordinator at Medford Leas noted the aims of the project:

"The area outside of the nursing and assisted living units was a brown rubber roof. To convert that area into something that enticed residents to go outside or enjoy nature from their patios and windows and provide a safe, accessible and beautiful area, which involved all their senses. To also use flowers, plants and vegetables to stir up memories since many of our residents had been farmers."

### Development of the Back Porch Garden.

The creation of a special outdoor setting for elders with special needs was the primary thinking behind the development of the Back Porch Garden.

The garden is located in the healthcare section of the community between Estaugh Assisted Living to the south and Woolman Skilled Nursing and Dementia Care to the north.

An activities and multi-purpose recreation room is located to the east and a covered walkway to the west encloses the garden. The eastern half of the garden, closest to the recreation room, is a rooftop and the surfaces here have been painted green: the walking path is dark green and the areas to either side are light green. The surfaces to the west are light tan concrete.

The elders residing in the assisted living, skilled nursing and dementia residences are the primary users of the Back Porch Garden because they are not as physically able to visit the outer areas of the arboretum. The development of a nature-filled, outdoor living environment between the buildings was vital for the residents in order to continue to participate in activities outdoors. Initially, the garden area was underutilized and a design for the area was solicited in 1999. Exposed aircondition equipment and vents, the lack of plants, a shiny rooftop surface and other conditions made the area unpleasant and infrequently used.

A landscape plan for the outdoor area was developed by Design for Generations, LLC.

Representatives from the care staff, administration staff and residents attended all the briefing meetings to discuss the uses for the garden area. Conceptual plans for the garden area were developed and reviewed by all of the stakeholders. The need for shade, plants to help 'soften' the area, reducing the glare from the hard surfaces and creating 'rooms' for various programs were some of the components of the design equation.

Familiar garden elements that were typically a part a person's yard were sought. Water features, a barbeque grill, a small pond, a vegetable garden, fruit trees, bird feeders, potted plants, and similar garden features were all important elements to be added to the garden.



Fig. 102 Raised planters of varying heights

Thistle feeders attract specific types of birds to the garden.

One of the residents who owned an apple orchard selected the apple trees to be planted in the garden.

Raised planters of varying heights would provide opportunities for residents to continue to garden.



Fig. 103 Layout of garden (refer to appendix 1 on page 218 for enlarged version)

According to Gerry Stride, Resident Life Coordinator at Medford Leas:

"The flowers, plants and vegetables stir up memories, since many of our residents had been gardeners and farmers."

Constructing a back porch for residents to sit outside under a canopy was an essential component of the garden. This offers residents, staff and guests an opportunity to sit on a real porch, which is an iconic architectural element familiar to almost everyone.

Staff are very involved in scheduling activities within the garden from spring to fall. There is a wide range of events, including Easter parades with children from the neighborhood, holiday parties, fashion shows, barbeques and picnics, to name a few. There are weekly evening concerts and everyone from the retirement community attends.

The residents with dementia living in Woolman have a special patio area within the western section of the Back Porch Garden.



Fig. 104 The patio area for those residents living with dementia, during a summer concert



Fig 105 The dementia patio area: kite activities

This is their area where they can be in a quieter setting, yet still be close to the main events. The area is covered in part by an awning and enclosed by a low fence. Because this smaller garden area is located within the larger courtyard area, elopement is not a concern. The residents of Woolman are able to enjoy the overall garden, with assistance, as many of the residents are confined to wheel chairs and participate in many of the larger group activities, such as concerts, when it is appropriate.

One of the special features of the Back Porch Garden is the interaction of all of the residents of the community.