

# Fukuoka Dementia-Friendly Design

**30** points for creating a more  
inclusive environment



福岡市認知症フレンドリーセンターのご案内



Information for Fukuoka Dementia Friendly Center  
JAPAN CAROLINA SQUARE WALK - 10200





# Fukuoka Dementia-Friendly Design

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# Chapter 1

# Background and aims of the Design Guide

## Background

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We currently live in a society where approximately one in seven people aged 60 and over, and two in three people 90 and over have dementia. Dementia can affect anyone, and it is not uncommon for you or someone around you to develop dementia. In this context, it is important that each of us learn more about people with dementia and have a proper understanding of dementia.

With the understanding and cooperation of those around them, and with their help and a few hints, people with dementia can live a life with joy, happiness and fulfilment. Society as a whole needs to promote initiatives from the perspective of people with dementia and create a society where everyone can live with dignity and hope.

## Objectives

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This guide outlines 30 key points to make our living environment more pleasant and inclusive. The guide is not limited to residences and facilities where people with dementia live, but covers a wide range of city buildings and outdoor spaces. Its aim is to encourage people with dementia, their families, local people, healthcare and social care professionals, people involved in design and construction, government officials and others to think about designs that can be introduced into buildings and outdoor spaces, and to spread dementia-friendly design throughout the city.

Based on the effectiveness of international research on the living environment for people with dementia, and taking into account the opinions of people with dementia, we formulated this guide working with researchers, healthcare and social care professionals, architects and design experts to consider forms that could be easily incorporated into the living environment in Japan. We believe that many of these designs are also easier to understand for everyone, not just people with dementia.

# Roles

The design points covered in this guide can be put into practice in various public facilities and outdoor spaces as well as in homes and care homes. Some of the points can be addressed with simple adjustments, and are not only for when constructing new buildings or renovating them. The points can also be used as a reference when checking whether the current environment is dementia-friendly.

To create a dementia-friendly environment, it is important to consider both the physical environment (hard), such as buildings and interiors, and the social environment (soft), such as the way people think and interact with each other. It is important to have a sound knowledge of dementia and to take both a hard and soft approach to create the kind of life the person with dementia wants with the people around them.

Column

## Co-production with individuals experiencing dementia

We want to carry on with our daily life as before even when we have dementia. However, many people with dementia have stopped going out, shopping and using transport for a variety of reasons. By understanding the needs of people with dementia and working together to providing services that meet those needs, various businesses can be part of helping people with dementia to live as they always have.

Fukuoka City is working to create an environment where people with dementia can have a sense of purpose and hope in life and can participate in society while making use of their experiences. One of the initiatives is to promote the development of products and services that are easy to use for people with dementia and all other types of people by connecting people with dementia and businesses and providing knowledge on dementia-friendly design.



Interaction between people with dementia and business people



Creating opportunities for people with dementia to be involved in product development



Development of products that are easy to use for people with dementia

In order to create an inclusive society, it is important to promote an environment where people with dementia and people from businesses such as buses and railways, banks and call centers, supermarkets and other retail outlets can work together.

By understanding and responding to the needs of people with dementia, businesses such as buses and railways, banks and call centers, and supermarkets and other retail outlets, can contribute to creating an inclusive living environment along with the people with dementia themselves.

## Urban development through universal design in Fukuoka City

'Fukuoka Dementia-Friendly Design' is based on universal design. Universal design is the concept of designing products and environments to make them accessible to a diverse range of people, regardless of disability, age, gender or race. The aim of Fukuoka Dementia-Friendly Design is to create a calm, easy-to-understand environment that is accessible not only to people with dementia, but also to a wider range of people, thereby supporting people's lives.

### Barrier-free urban planning

Fukuoka City has formulated the Fukuoka City Welfare Urban Development Ordinance and the Fukuoka City Barrier-Free Basic Plan to promote urban development based on the principle of universal design. The city is promoting barrier-free initiatives that integrate physical and social environments so that all citizens, including the elderly, people with disabilities and people with children, can live safely and move around smoothly. Hard and soft barrier-free measures are being promoted in an integrated manner.

#### Hard approaches



Eliminating steps at toilet entrances (ramp conversion)

When new buildings and other facilities are constructed or refurbished, meetings are held in advance with constructors to ensure that they comply with barrier-free standards. Barrier-free access is also progressing at train stations, bus terminals, roads and parks.

#### Soft approaches



Public relations magazine: The Barrier-Free Mind

To deepen people's understanding of mobility issues and daily difficulties faced by the elderly and people with disabilities, we distribute and promote The Barrier-Free Mind, a magazine that provides easy-to-understand explanations on how to talk to and help people with disabilities.

#### Bench Project



Utilizing grants to install benches

To create an environment where everyone can easily get out and about, we are promoting the Bench Project, an initiative that involves installing benches throughout the city.

## What is dementia?

Dementia is a condition in which various brain functions deteriorate and people find it more difficult to socialise or work than they used to. The brain is the command center that controls all our activities; if it does not work well, our mental and physical activities will no longer run smoothly. People with dementia are affected in various degrees ranging from mild to severe symptoms. There are also people who experience cognitive decline or mild cognitive impairment (MCI) even when they are not diagnosed with dementia. It is important to understand what problems the person has and to deal with them individually, rather than grouping them all together as having dementia.

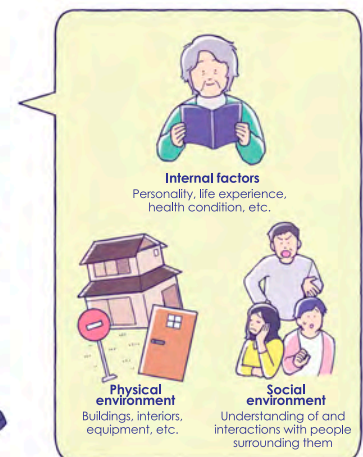
## Understanding behaviors and thinking of people with dementia

The behavior and psychological state of people with dementia are not caused only by symptoms of dementia, such as memory impairment, but by a complex combination of: the internal factors of the individual (dementia, personality, past life and health); their physical environment (buildings, interiors and equipment); and their social environment (the understanding of and interactions with the people around them). The behavior of the person with dementia are only a visible part of the picture. It is important to understand and resolve the underlying causes of their behavior, including the individual's inner life and environment, rather than simply judging from the behavior alone.

Behaviors of people with dementia



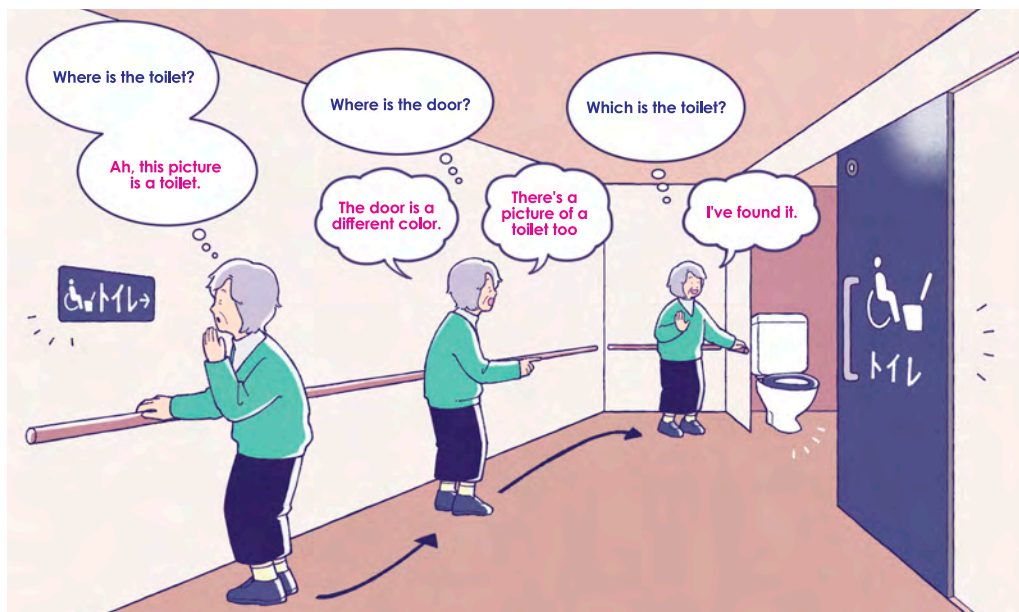
Behavioral factors



The Fukuoka Dementia-Friendly Design described in this guide is designed to make everyday life easier for people with dementia and their families by improving the physical environment of the homes, public facilities and outdoor spaces where they usually use in their daily lives.

## Impact of dementia on the individual

Symptoms of dementia, such as memory impairment, disorientation and impaired comprehension and judgement, as well as visual, hearing and walking impairments due to ageing, can make it difficult to be independent. Creating an environment catering to these challenges can support the person with dementia as well as their family and carers. For example, the action of going to the toilet is completed through multiple stages: looking for the toilet; opening the door; and locating the toilet seat. At each stage, it is important to identify and remedy any stumbling blocks for the person with dementia.



### Column

#### Living with dementia

Many people feel confused and anxious when they are diagnosed with dementia. However, just because someone has dementia does not mean that they will suddenly forget everything or become unable to do anything. It is important not to feel anxious or distressed alone, but to seek advice and think together with people you trust about how to live with hope in your own way.

It is important that people around the person with dementia do not judge the person based on preconceptions or images of dementia. They should understand the situation the person is in and support them. It is also important to listen to the thoughts of both the person with dementia and their carer. Both the person with dementia and their carer should be able to relax with each other while making good use of care services, and value meeting and connecting with others who can support them on their journey.

## Chapter 3

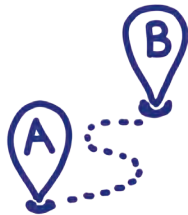
# Basic design concepts and key points

## Basic concept of design

Dementia-Friendly Design means universal design considered from the perspective of older people, not just people with dementia, and designed to fulfil the required functions based on an understanding of the perspective of people with dementia. In this guide, the following two concepts are the basis for designing for older people, including people with dementia

1

**Creating spaces where people can move without relying on memory**



**Enable people to understand where they are and where they want to go from the clues available to them at the location, without having to rely on memory.**

People with dementia find it difficult to rely on memory to understand their surroundings. To create a sense of independence and security, it is important to incorporate clues in their environment to help people understand what is going on. It is important to place distinctive landmarks effectively, to remove unnecessary or confusing objects, and to divide the space into small sections so that the desired place or object can be seen naturally and the whole area can be seen at a glance.

2

**Creating places where people feel safe and can choose to be themselves**



**here are places where people can be alone, can interact with others and can choose to be themselves in a safe and secure environment.**

Being able to choose their own behavior is the first step towards living a fulfilling life. Personal areas can be clearly separated from communal areas and furnished with familiar furniture and objects to create a cosy and secure space. Other areas can also be furnished with representative furniture, lighting and decorations to make it easier to understand what the place is for and to expand the range of behavior options. Ensuring safe and free access to outdoor spaces can also help people to continue to live their lives in a way that they want.



## Five perspectives of design

In order to put into practice the concepts of creating spaces where people can move without relying on memory and creating places where people feel safe and can choose for them themselves, five perspectives have been established and 30 specific design points have been compiled.

### A Color (brightness) combinations



### B Utilizing signs and landmarks



### C Adjusting lighting



### D Considering familiarity and security



### E Safe outdoor spaces



## A Color (brightness) combinations

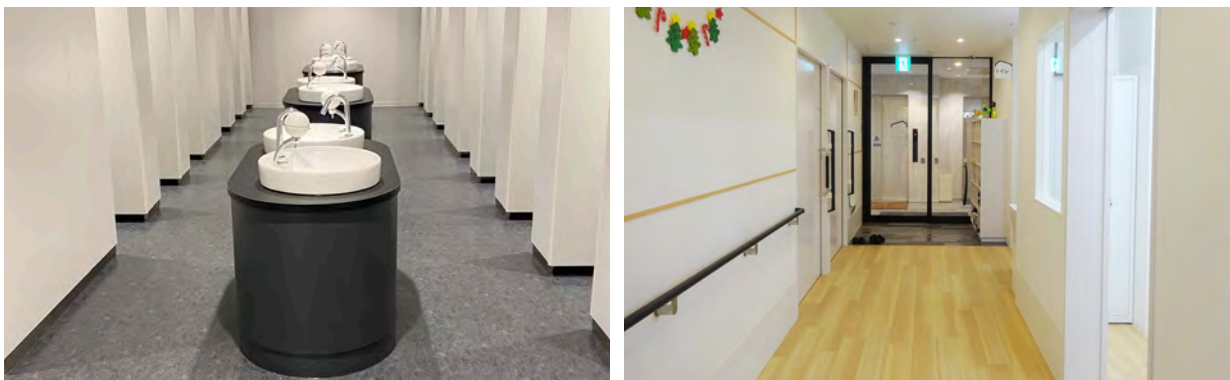
In addition to age-related changes in color perception, some people with dementia may have reduced visual acuity, peripheral vision and ability to process visual information. Areas that you want them to recognize can be contrasted with color (brightness) to draw their attention. If there are objects that you do not want people to recognize, you can make them less noticeable by not contrasting them.

Point

### 1 Increase contrast in brightness.

Having clear spatial awareness and being able to reach destinations such as the toilet or their room without getting lost helps independent living. Make things you want people to recognize and notice contrast in brightness with their surroundings to make them easier to find.

#### Floors and walls



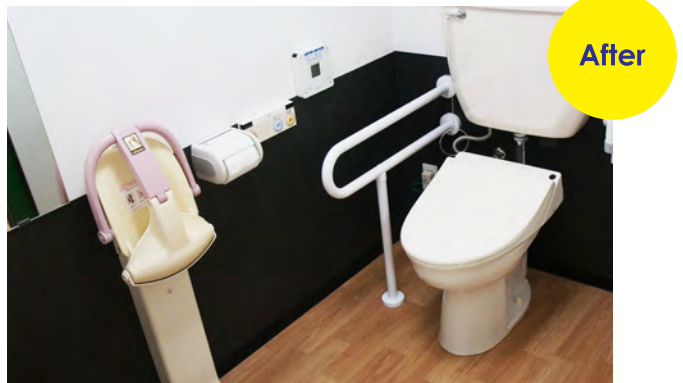
Contrast between floors and walls can help people with reduced visual ability to perceive space.

#### Doors and walls



Doors should be contrasted with walls so that they are easily recognizable. It is reassuring to know where you are going.

### Toilets



Toilets should contrast clearly with their surroundings so that the toilet is clearly visible, as there is a high risk of tripping in the toilet.

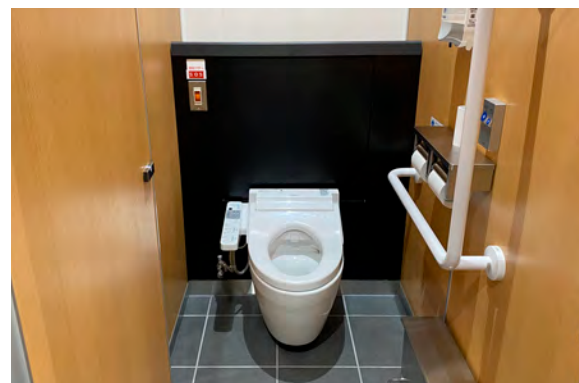


The color of the toilet door should contrast with the surrounding walls. This makes it easier to find and reduces confusion.

### Handrails and handles



Contrast handrails with walls, and handles with doors.



Dining areas



There should be a contrast between the floor and chairs, and the floor and tables.

Food and tableware



Clearly recognizable food can increase appetite. There should be clear contrast between food and tableware.

Column

### Hue, brightness and saturation

Color has three attributes: hue, brightness and saturation. Brightness is the most important of these when it comes to contrast. Brightness can easily be checked by taking photos with the black and white mode of a camera.

**Hue:**

Hues describe colors, such as red, yellow, green, blue and purple.



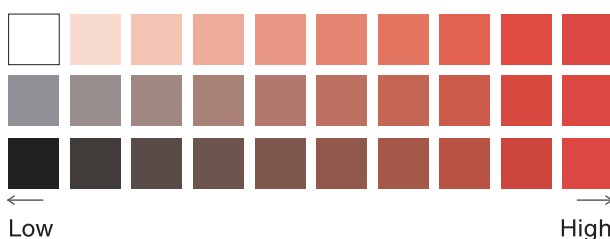
**Lightness:**

The degree of brightness of a color refers to the amount of light perceived by the eye. White has the highest brightness and black has the lowest.



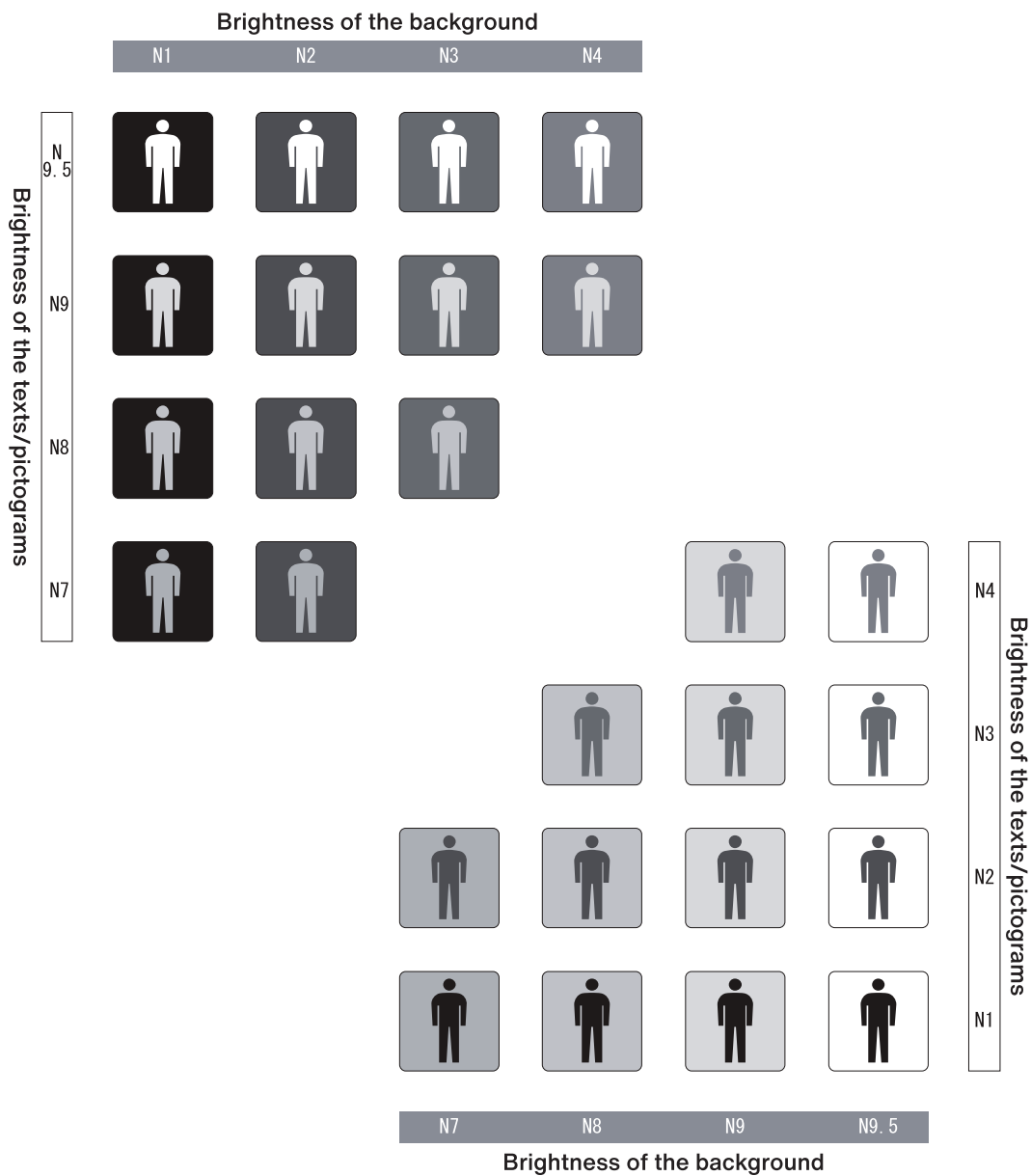
**Saturation:**

The degree of vibrancy of a color refers to the degree to which white and black are mixed together. Like the primary colors, the less white or black a color contains the higher the saturation.



## Contrasting brightness of text/pictograms against their backgrounds

It is easier to identify a sign if the brightness of texts and pictograms are contrasted against their backgrounds to the extent shown in the diagram below.



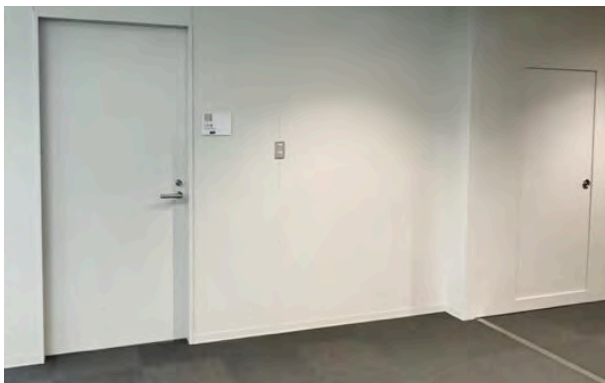
References :  
 Ministry of Land, Infrastructure, Transport and Tourism (2021),  
*Architectural Design Standards for Smooth Mobility of the Elderly and Persons with Disabilities, 2021 Edition* [Japanese]  
 Ministry of Land, Infrastructure, Transport and Tourism (2022), *Guidelines for the Development of Public Transport Passenger Facilities to Facilitate Movement, etc. (Barrier-Free Development Guidelines for Passenger Facilities)* (March 2022 edition) [Japanese]

Point

## 2 Reduce contrast in brightness.

Doors to areas that are off limits (e.g. staff facilities) should be a color that blends in with the surroundings without contrast. In addition, the floor color throughout the living space should be consistent. Contrasting floors can look like steps, which can lead to people to stop in place or hesitating when stepping out, which can lead to loss of balance and falls.

### Staff facilities

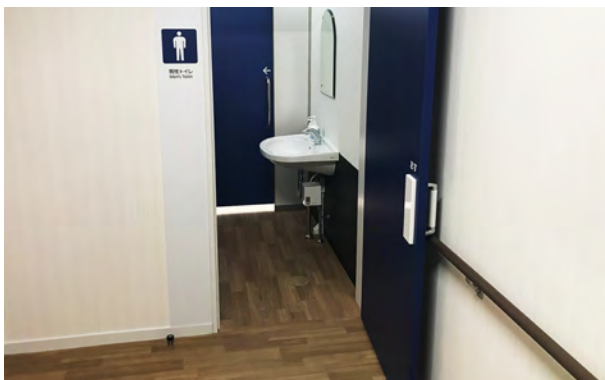


Doors to offices and other areas used mainly by staff should be discrete and the contrast reduced so as not to stand out.

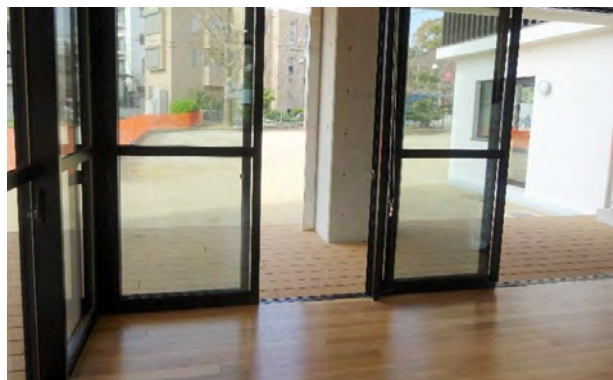


Storage cupboards used by staff should also be discrete and the color should be matched to the surrounding walls.

### Floors



Contrast should be eliminated as much as possible and the brightness of the floors should be consistent throughout the building, e.g. the floor between the toilet and the corridor, and between the room and the corridor.



Similarly, contrast should be kept to a minimum on floors inside and outside the building (e.g. balconies).

## B Utilizing signs and landmarks

Consider appropriate sign locations and install easily recognizable signs so that people can act on the information available on the spot rather than relying on memory. It is advisable to place distinctive landmarks in places where it is easy to get lost. If the person can get to his or her room or toilet without getting lost, he or she can choose his or her own behavior without having to rely on assistance.

Point

### 3 Provide legible and easily recognizable signs.

Signs should not only be written but also accompanied by easy-to-understand pictograms. Signs should also be of an appropriate size. Signs should contrast texts/pictograms against their backgrounds. Abbreviations and jargon should be avoided and should be consistent throughout the building, including typefaces.

#### Use texts and pictograms together.



Use concise, easy-to-understand pictograms in addition to texts.

#### Set appropriate sizes.



Consider the distance from which the sign will normally be seen and make sure it is the right size for that distance.

#### Provide contrast.



Create a contrast between the texts/pictograms and the background to make the sign highly visible.

#### Use familiar language.



Avoid unfamiliar foreign words and jargon, and use words that are familiar.

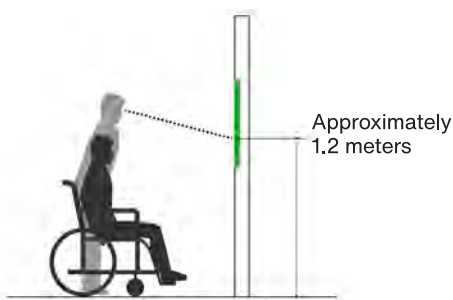
NB: The characters shown on the sign are examples when the native language is Japanese.

Point

## 4 Place signs in appropriate locations.

It is important to place signs in places where they can be seen naturally by people with dementia. Install signs at appropriate heights and positions, and also consider the location of any directional signs.

Install at a height that is easy to see.



When viewed from a distance of 1m

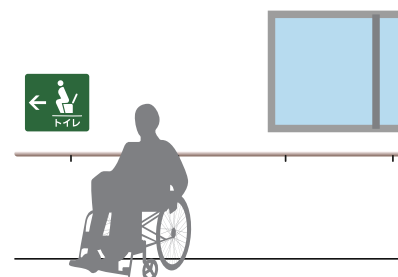
Older people, including those with dementia, tend to stoop. Install signs at approximately 1.2 meters off the floor, in line with eye level.

Position signs where they can be easily seen.



Room name signs, for example, should be displayed directly on the door and emphasized by color or other means. If doors are often left open, place them on the wall next to the door as well.

Install directional signs.



If the room is not directly visible or the corridor to the room is long, install directional signs using arrows at appropriate points, such as at junctions in the corridor, to indicate the direction.

Column

### Text sizes of signs

In order to create highly visible signs, it is important to consider the distance from which the sign will be seen (visibility distance) and set the appropriate number and size of texts.

#### 1. Signs for direction at stations, public facilities, etc.

Visibility distance	Character height
5m	20mm
30m	90mm
100m	300mm

#### 2. Signs on explanation boards at stations, public facilities, etc.

Visibility distance	Character height
0.6m	7mm
1m	12mm

Reference  
 Fukuoka City (2020), *Fukuoka City Welfare Community Development Ordinance: Facility Development Manual (Revised Version)* [Japanese]



point

### 5 Place signs on the surface of toilet doors.

Signs should be placed on toilet doors. Uniform coloring in the building will make it easier to recognize locations of toilets by their color.



point

### 6 Place memorabilia that trigger positive memories in front of their own room or home.

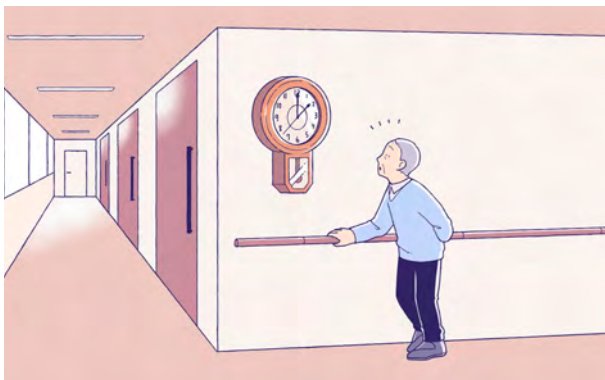
Placing items from the past, old photographs and memorabilia in the room or in front of their home can make it easier to locate.



point

### 7 Place distinctive landmarks in appropriate places.

Distinctive objects are easy to remember and are useful when people want to locate themselves. Place familiar or nostalgic objects in places where people need to determine where they are going. Placing objects related to the room in the vicinity will also help them intuitively understand the meaning and purpose of the space.



Decorating the corridor with distinctive objects, such as an old clock or an old photograph of the area, can serve as a landmark and make it easier to recognize a place.

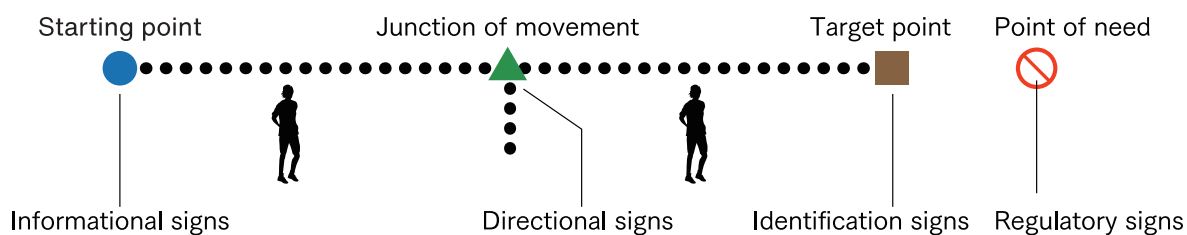


Distinctive artwork provides a clue to finding a location, as well provides a talking point for those passing by.

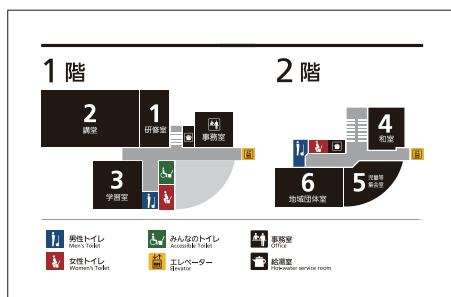
Column

## Types of signs

There are four main types of signs. Install appropriate signs in line with the user's movement.



### Informational signs



Signs used at entrances to facilities to give an overall picture. They indicate a map of the facility and information on its use.

### Directional signs



Signs indicating the direction of a room or place. They are placed at junctions in corridors.

### Identification signs



Signs on room doors, etc. They indicate the name of the room.

### Regulatory signs



Signs that inform people of precautions and prohibitions. Use pictograms, etc., that are easily recognizable at a glance.

## C Adjusting lighting

Many older people, with or without dementia, experience a decline in visual ability as they age. To make it easier for them to understand their surroundings and to reduce the risk of falling, ensure that there is an appropriate amount of light indoors. In addition, low activity during the day or exposure to bright lighting at night can disturb sleep at night. Adjusting the brightness helps regulate the body's internal clock.

Point

### 8 Arrange ample lighting.

As we age, we need more light to see. Position sufficient lighting and provide dedicated lighting for manual tasks.



Point

### 9 Allow sufficient natural light in.

Try to increase the amount of natural light that comes into the room during the day. Natural light helps regulate the body's internal clock, improves sleep quality, stabilizes emotions and moods, and increases appetite.



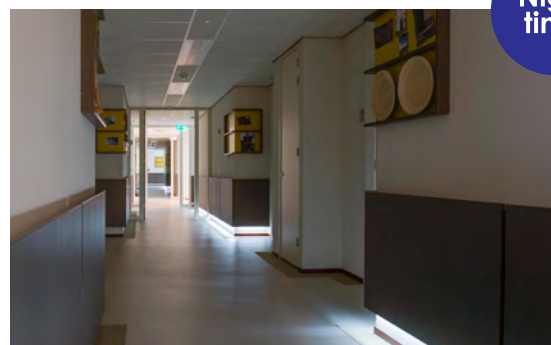
Point

### 10 Adjust lighting according to the time of day.

Brighten lighting during the day and darken it at night to help regulate the body's internal clock. At night, it is necessary to ensure that light does not leak into areas that should be darkened.



Day  
time



Night  
time

point  
**11 Reduce unpleasant glare.**



As we age, we find it more difficult to cope with strong light, so we should try to prevent glare. Use indirect lighting and curtains to control sunlight.

Reflective floors can look wet and can lead to falls. Try to avoid reflective materials and use materials with a matte finish.

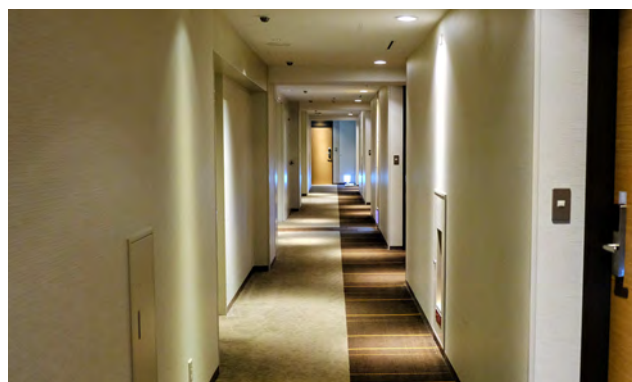
point  
**12 Avoid shadows and dark areas in corridors.**

Shadows on the floor or dark corners of rooms can be mistaken for steps or shadows of people.

**Good**



**Bad**



## Lighting standards in housing

The Japanese Industrial Standards (JIS) set out the following lighting standards for residential dwellings and recommend that lighting settings should be higher than those shown below if the subject's visual function is low. Older people may find higher lighting levels desirable, as their visual function declines with age.

JIS maintained lighting (lx)	Corridor/entrance		Living room			Cafeteria		Bedroom	Bathroom, toilet		Outdoors
	stairways/hallways	entrance (inside)	Living room	drawing room	study	Cafeteria	kitchen	Bedroom	Bathroom, rest room	toilet	Garden
1000			Crafts, sewing								
750					Reading, studying			Reading, make-up			
500		Mirrors	Reading		Working on a computer						
300						Dining table	Cooking tables, sinks		Wash, shave, make-up		
200		Shoes off, shelves	Gathering, entertainment	Tables, sofas							
100		General		General	General		General		General		Eating, parties
75										General	
50	General		General			General					
30											Terrace, General
20								General			
5											Passageway
2	Late night							Late night			Security

General and local lighting should be used together, depending on the use of each place. Dimming also should be made possible in living rooms, reception rooms and bedrooms.

### Reference

Japanese Industrial Standards (2011), *JIS Z 9110:2011 General rules of recommended lighting levels*

For healthcare facilities, commercial facilities, etc., refer to *JIS Z 9110:2011 General rules of recommended lighting levels*.

Blue lighting with short wavelengths has been shown to suppress the secretion of the hormone melatonin, which promotes sleepiness, and to disturb the rhythm of the body's internal clock. In bedrooms and at night, blue lighting (daylight or daylight white) with short wavelengths should be avoided and bulb-colored lighting should be used.

## D Considering familiarity and security

It has been found that for people with dementia, memories of their youth are retained for a relatively long time. The person can feel pleasure and security from familiar objects and can make good use of familiar things. Knowing the person's previous way of life, hobbies and preferences can help create a familiar environment. These are particularly important in environments outside the home, such as in care homes and hospitals.

Point  
**13 Create a homely atmosphere.**

Avoid inorganic interiors that lack a lived-in feel. Create an atmosphere that feels familiar and relaxing, just like their own home. Also, make a clear distinction between private and communal areas so that they are intuitively recognizable.

### Private areas



Spaces with the person's personal belongings and furnishings motivate daily activities and stabilize emotions and behaviors.

### Communal areas



Arranging things that are characteristic of the room, such as cupboards in the dining room, in a way that makes it feel like home, calms the mind and encourages interaction with others.

### Toilets and bathrooms



Aim for a calm and relaxing interior where people can recognize the place they are using, rather than an inorganic space that focuses only on ease of use for carers.

### Lighting fixtures



Use of homely light fittings creates a home-like atmosphere.

Point

## 14 Create spaces where people can choose what they want to do.

People with dementia can suffer from feelings of loneliness and helplessness. Create an environment where people can choose what they can and want to do, rather than what they can no longer do, and choose for themselves what interests them, while connecting with people.

### Lounge



Provide a place where people can sit and chat. Furnishings should be clearly visible so that people know what they are doing.

### Hobby spaces



Ensure the opportunity to partake in activities that interest people, promoting a satisfying and enjoyable lifestyle.

### Other



Memories of your youth will be retained for a long time. Decorating the room with nostalgic objects, such as photos from those days, can be calming.



Aquariums and plants can add color to a space and spark interest and curiosity.

Point

**15 Keep spaces clutter-free.**



Before



After

Cluttering spaces with objects and displays makes it difficult to find what people are looking for, and clutter can also cause confusion. Remove as much unnecessary items as possible, so that what people can naturally see what they need.

Point

**16 Provide a direct view of the intended place or object.**

Being able to see inside a room from the outside helps people understand the purpose of the room and prevents anxiety before entering and confusion afterwards. The use of furniture such as wardrobes whose contents can be directly seen is also effective.



Point

**17 Reduce echoes and noise in the room.**

Echoes and noise in a room can be mentally taxing, confusing and stressful. Create a quiet space.





Point

18

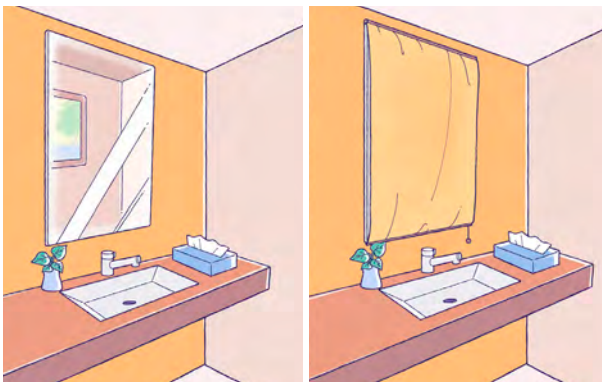
## Select and arrange furniture that is easy to use and accessible.



Having appropriately-sized chairs available in the corridor allows people to sit and think if they forget where they are going. At the same time, they also serve as place markers.



Being able to use the toilet or bathroom independently gives users confidence. Handrails and toilet paper should be placed in easy-to-use positions. Also choose a washbasin and tap that people are familiar with, so that they can use them without confusion.



Some people with dementia may not recognize their reflection in the mirror, which can cause anxiety. Cover them if necessary.

Point

**19 Do not lock doors used by people with dementia.**

Locked doors can lead to unnecessary frustration and anger. Make it an environment where people can choose and act on their own.



Point

**20 Make dead-ends interesting and relaxing.**

A space where people can enjoy pictures and flowers, or read books and newspapers, can help ease the feeling of dead-ends and create a friendly atmosphere.



Point

**21 Prepare a space where people can concentrate on eating.**

Keep the number of people in the dining area below 10 so that people can concentrate on their meals. It should be possible to accommodate people who want to eat alone.



Point

**22 Avoid using large or strong patterns.**



Some people with dementia may feel anxious or confused about large or strongly colored patterns. Choose calming patterns for floors and walls.

Point

**23 Place windows where people can see outside even when sat down.**



Ensure that people can enjoy the outside view, even when sat down. This reduces the feeling of being confined indoors and creates a connection with the outdoors by allowing them to experience the weather and the seasons.

Point

**24 Position the toilet in a place that is easily seen.**

Toilets should be located in a place that is visible from the spaces where people normally spend their time. If it is not in a visible location, install an easily recognizable sign. It is also important that the toilet does not emit odors.



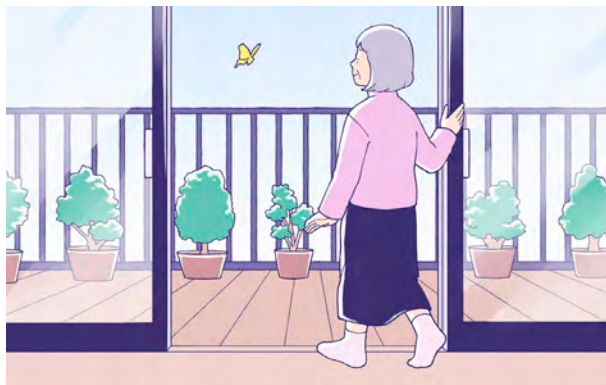
## E Safe outdoor spaces

An environment where people can move around freely reduces stress and also encourages independent activity. Being outdoors also improves physical and mental health. Locked outdoor entrances may prevent the person from doing what they want to do and lead to anger and frustration. Consider ways to keep them safe in a subtle and discrete manner.

point

25

**Provide safe access to and from the outdoors.**



During the daytime, it is desirable that entrances and exits to balconies and other areas are not locked, and that they should be able to be accessed freely, taking safety into consideration. Door handles for entrances and exits should be easy to open.



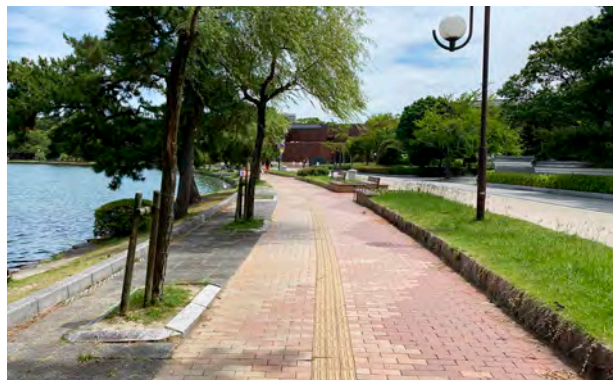
Outdoor spaces should be designed to prevent people with dementia from accidentally leaving the premises. Planting near the site enclosure can help to subtly disguise any off-site entrances and exits.

point

26

**Ensure that pedestrian areas are free of steps, slips and reflections.**

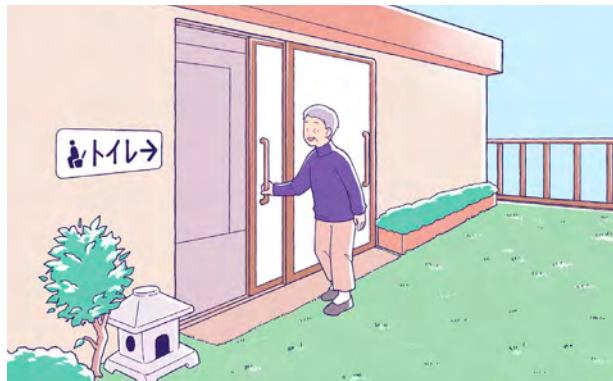
Choose pedestrian areas that are flat, non-slip and non-reflective. Drainage should also be considered.



Point

**27 Make it easy to reach toilets from outside.**

If toilets are located in areas that are not directly visible from the entrance/exit area, install easy-to-see signs in well visible locations.



Point

**28 Arrange garden furniture such as flowerbeds for enjoyable activities.**

Tables and chairs, places to hang clothes to dry, greenhouses, sheds and workshops are good opportunities to get out and exercise. Raised Flowerbeds allow people with bad knees or wheelchairs to enjoy gardening.



Point

**29 Provide benches for resting and relaxing.**

A resting place makes it easier to go outside. In addition to the contrast between the ground and the bench, make sure it is safe, strong and well secured to the ground.



Point

**30 Make it easy for children to visit.**

Children's presence brings enjoyment to people. Try to incorporate innovations and interaction mechanisms that make it easier for children from the neighborhood to visit.



# Chapter 4

## Design implementation in practice

### Practical examples of design implementation

Fukuoka Dementia-Friendly Design was implemented in the Tsutsumi Community Center in Jonan Ward, Fukuoka City, and interviews and questionnaires were conducted with people with dementia and people who use the community center.

Examples of the designs in the Tsutsumi Community Center are introduced here. When planning dementia-friendly designs, it is important not to implement the designs shown below in a uniform manner, but to discuss with the stakeholders concerned and implement designs that take into account the purpose of use of the facility and the situation of the users.

Main points utilised

Point

1

Increase contrast in brightness.

Auditorium



Before



After

To make it easier to locate the auditorium, the contrast between the walls and doors is made clearer. In addition, the room name signs are placed at eye level in a larger size.

Corridors



Before



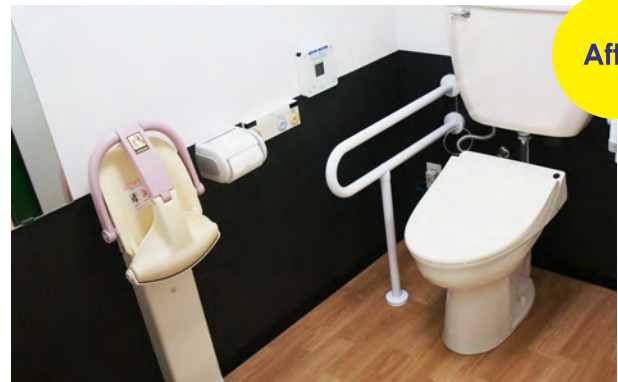
After

To facilitate spatial awareness, the flooring is contrasted with the walls.

Toilets



Before



After

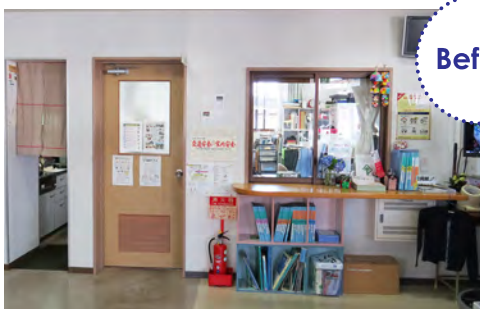
To make it easier to identify the location of the toilet bowl, it has been contrasted against the walls and floor. The wallpaper color is changed at waist height to prevent the inside of the toilet from becoming too dark.

Main points utilised

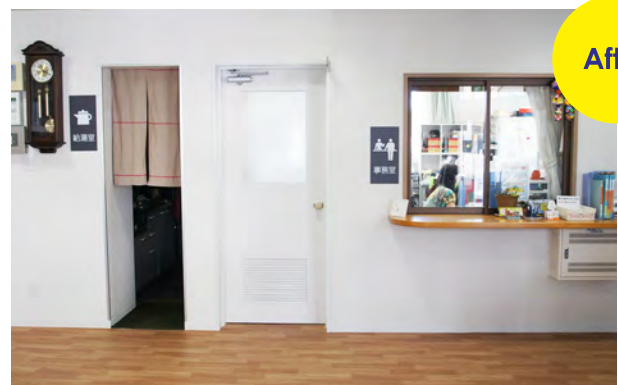
Point  
2

Reduce contrast in brightness.

Staff office



Before



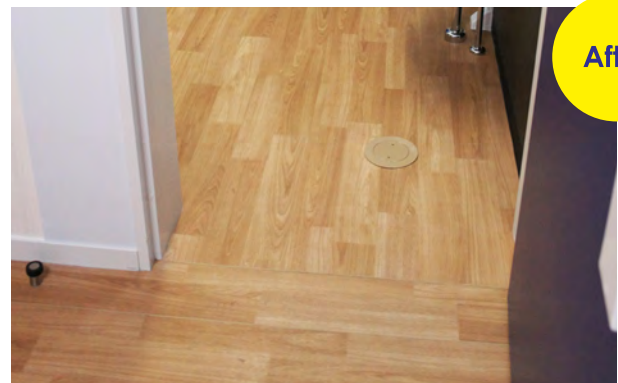
After

Doors used by staff in the facility are made less visible, so the contrast between the door and the wall is weakened.

Toilet and corridor floors



Before



After

To avoid being seen as steps, the floors between the toilet and corridor are color-coordinated.

Main points utilised

- Point 3 Provide legible and easily recognizable signs.
- Point 4 Reduce contrast in lightPlace signs in appropriate locations.

Toilets



Signs with both texts and pictograms are placed at eye level. In addition, the wall and door are contrasted to make it easier to identify the toilet.

Installation of other signs



Switches in toilet

Floor map of the building

Directional signs

Switches with both texts and pictograms, a floor map of the building and directional signs are installed.

Main points utilised

- Point 15 Keep the space clutter-free.

Corridors



To avoid confusion, posters and notices have been removed from the walls in the corridors and consolidated in the noticeboard area. In addition, handrails contrasting with the walls have been installed to prevent falls.



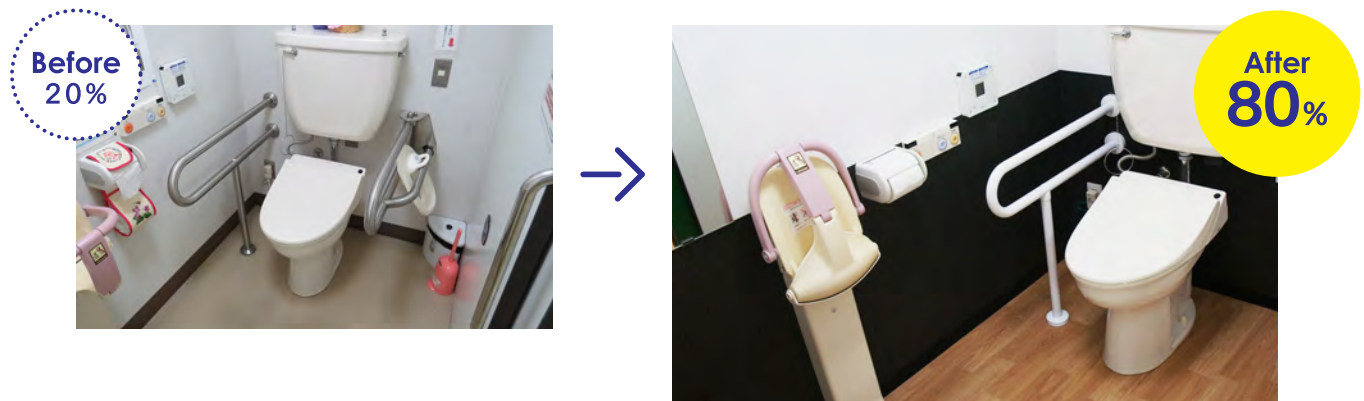
## Design survey of people with dementia

(30 people with dementia)

When asked what room that was for the before and after photos, 100% of the respondents said it was a toilet in the after photo.



When asked which toilet was easier to find in the before and after photos, 80% of respondents said it was easier to find in the after photo.



## Design survey of community center-users

(97 users)

More than 90% of the respondents answered that the location of the toilet doors and the toilet bowls were easy to find, and 99% of the respondents gave positive answers about their overall impression of the community center, such as cosy and bright.



## Introduction of facilities where the design has been introduced

Fukuoka City has been introducing Fukuoka Dementia-Friendly Design since 2019, and as of the end of March 2023, 49 facilities had at least partially introduced the design.



### Hakata Ward Office



Large windows provide ample natural light. The presence of plants creates a calm space.



Escalator handrails are in a color that contrasts with the surroundings, making them easy to recognize. Signs are installed in an easy-to-read size.

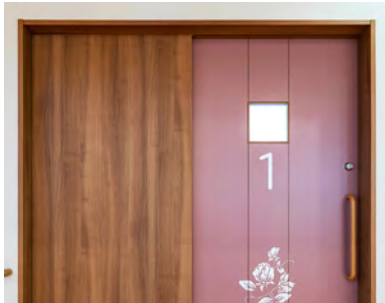


The floor and walls contrast with each other, making it easy to recognize the space. Elevator doors contrast with surrounding walls and are easy to recognize.



Furniture contrasts with the floor and is easy to recognize. Window signs are of a size that is easy to read.

**Kofukan, Multifunctional long-term care in a small nursing group home**



The doors are colored to contrast with the surroundings. Doors are marked with numbers and illustrations to serve as landmarks.

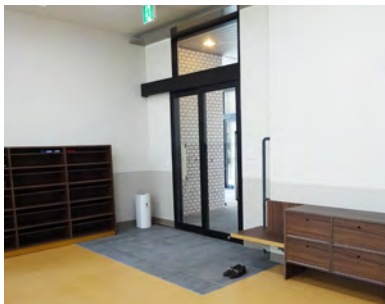


The contrast between the floor and walls makes it easy to recognize the space. Some people get confused when looking in the mirror, so it is covered.

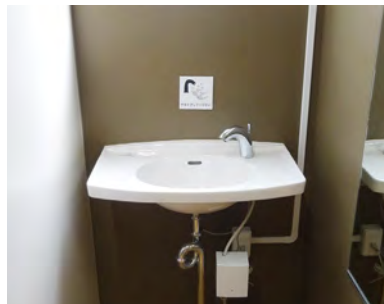


To make the toilet bowl and handrails easily recognizable, the rear section is a contrasting color.

**UR Shikata Housing Complex Meeting Hall**



The entrance frame is bordered in black to make it easier to recognize. Furniture such as shoe boxes contrast with their surroundings and are easy to recognize.

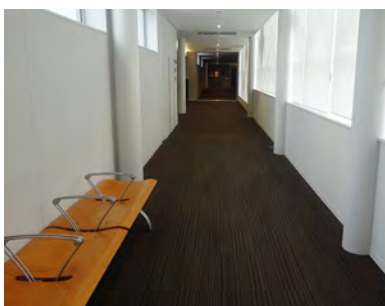


To make the washbasin easier to recognize, the rear part is in a contrasting color to the washbasin. A sign is provided to make it easy to understand how to use the automatic tap.



Doors that are not in general use are inconspicuous and of a color that does not contrast with the surrounding walls.

**Minami Ward Civic Center**



Chairs are provided in the corridor for resting. The chairs contrast with the surroundings and are easily recognizable.

**Kashihara Community Center**



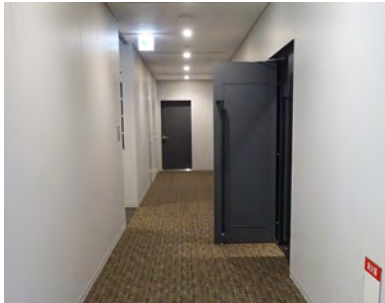
Large windows provide ample natural light. The staircase handrails are in a contrasting color to the surroundings and are easily recognizable.

**Toilet at Iki-no-Matsubara Stone Fortifications**



Appropriately-sized signs have been installed, and the use of distinctive colors on the signs makes them easily recognizable as toilets from a distance.

Sawara Minami Community Exchange Center (Tomoterasu Sawara)



The contrast between the floor and the walls makes it easy to recognize the space. Doors for general use contrast with the walls and are easy to recognize.



There is an information sign in a color that contrasts with the surroundings and is easily recognizable. A floor map is provided.



Signs contrast with their surroundings and are easily recognizable. In addition, texts and pictograms are placed together.

Kushida Shrine Station, Nanakuma Line, Fukuoka City Subway



There is a contrast between the floor and the wall, making it easy to recognize the space. Items to be recognized, such as pillars and handrails, are contrasted against their surroundings.



Toilets use distinctive colors. Signs use pictograms (combinations of people and actions) that are easy for people with dementia to understand.



Pictograms are displayed in large sizes and in contrasting colors, so that they can be recognized from a distance. Doors are contrasted against their surroundings.

Hakata Station, Nanakuma Line, Fukuoka City Subway



The floor and walls contrast against each other for easy spatial recognition. To make the washbasin easy to recognize, the rear part is in a contrasting color to the washbasin.



To make the toilet bowl and handrails easy to recognize, the rear part is in a contrasting color.

Fukuoka City Hall



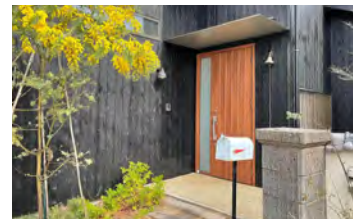
Floors (including dirty dripstone) are flat and have a uniform contrast, as strong contrasts on the floor may appear as holes or steps.

## Home-design innovations design that make life easier for people with dementia

Many people, whether they have dementia or not, wish to stay as long as possible in their home and in the community where they have lived.

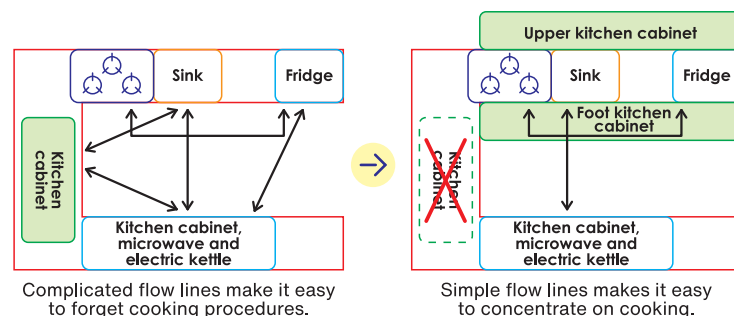
Even if they wish to live at home for as long as possible, a number of factors influence whether this is possible, including symptoms of dementia, household situation (e.g. whether they live alone or with somebody), the presence of local support services and accessibility to transport. It is important to consult local family doctors and care managers, as it often needs to be dealt with on an individual basis. The five perspectives and 30 key points in this guide provide many tips from the perspective of environmental design to help the person stay in their own home for longer.

For example, the front door. As memory deteriorates, the clues people get from the place are important. Often, when returning from a walk or an outing, it can be difficult to locate their own home. Placing a familiar and distinctive landmark by the gate or front door of their home can provide clues to their home and reduce the anxiety that they might lose track.



For example, using the toilet: how a person uses the toilet is deeply connected to their dignity, and being able to go to the toilet independently can keep one's confidence high. It is also a source of anxiety if a person loses track of where the toilet is, and it can be very stressful not only for the person themselves, but also for the family members living with them if they are not able to get to the toilet in time. To make it easier for people to find the toilet, you can put a toilet sign on the toilet door, make the door a prominent color and place the toilet where it can be easily seen.

Another example is the kitchen. For those who have cooked in the past, cooking is not only a necessary act of survival, but also a pleasure. Placing easy-to-use cooking utensils in the right places is another aspect of dementia design. If cooking involves a lot of complex movements, such as turning the body around, the steps may be forgotten halfway through the cooking process. If the cooking utensils are arranged in such a way that they can be used without changing the direction of the body, the movements become simpler, leading to a smoother cooking experience.



## Survey on comprehension of dementia-friendly pictograms

A survey of 97 people with dementia was conducted to identify trends in signs that are easy for people with dementia to recognize.

### < Results of the survey analysis >

#### ① Pictograms that require learning are difficult to convey the meaning.

Pictograms that are not similar to the content, arbitrary or customary, and require learning to understand the diagram and meaning, were difficult to convey to people with dementia. In particular, 10. 'Toilets' had a general public comprehension score\* of 92 compared to 35 for people with dementia\*\*.



#### ② Pictograms required for emergencies are particularly difficult to communicate.

The pictograms for 2. 'Emergency exit', 4. 'No entry' and 8. 'Emergency call button', which are necessary in an emergency, were particularly poorly understood by people with dementia. It would be desirable to add text to these pictograms.

**2. 'Emergency exit'**  
 General public (not surveyed)  
 People with dementia 29 points



**4. 'No Entry'**  
 General public 85 points  
 People with dementia 8 points

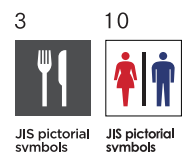


**8. 'Emergency call button'**  
 General understanding 88 points  
 People with dementia 28 points



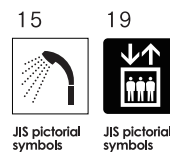
#### ③ People with dementia tend to understand pictograms only in the form they see them.

There was a tendency to understand pictograms only by the shape they saw, such as answering 3. 'Restaurant' as 'knife and fork' and 10. 'Toilet' as 'man and woman'.



#### ④ People with dementia see parts of a pictogram rather than the whole picture.

There was a tendency among the incorrect responses to be caught up in the shape of the part of the pictogram rather than the overall image, such as answering 15. 'Shower' as 'water' and 19. 'Lift' as 'three people' or 'three-seater'.



#### ⑤ The meaning of color is easily conveyed.

The number of respondents who correctly answered blue as men's toilet and red as women's toilet far exceeded those who answered incorrectly, suggesting that the symbolic meaning of the colors is easily conveyed only for blue and red for men and women.

⑥ Textual descriptions are easy to communicate.

People with dementia generally had a good understanding of text signs. However, the evaluation of whether they can read the texts but understand the content accurately requires ongoing research in the future.

⑦ The expressive elements of pictograms are easily conveyed by a combination of object and human action.

Comparing the comprehension of 'object only', 'human action only' and 'combination of object and human action', the pictograms expressing a 'combination of object and human action' tended to be relatively well understood.

Examples of pictograms combining objects and human actions



\*General public's comprehension: Results of a survey on the comprehension of graphical symbols conducted in 2000 by the Study Committee on Graphic Symbols for General Guidance (Secretariat: Foundation for Transport, Ecology and Mobility) on a total of 770 men and women aged 10 and over.

\*\*Degree of understanding by people with dementia: Results of a survey on the degree of understanding of graphic symbols conducted on 97 people with dementia in the development of this guide (for details, see <Contents of the survey>).

< Content of the survey >

Method of the survey

The questioner showed the subject a question sheet and asked, "What room is the room with this symbol?" and the answers were recorded.



Survey location

•20 elderly care facilities in Fukuoka City

Survey period

•June-July 2019

Number of elderly people with dementia surveyed by level of independence in daily living, measured by Japanese Long-term Care Insurance Assessment

•Independence level I / 17 persons •Independence level II/ 45 persons  
 •Independence level III and above / 25 people •Not stated / 10 people Total 97 people

Pictograms surveyed JIS pictograms



Evaluation method

The survey evaluation method was based on ISO 9186-2000 (Procedures for the creation and testing of pictograms).

The survey enabled us to identify some trends in the understanding of people with dementia. In the future, more detailed verification of color and text recognition will help to deepen our understanding of valid pictograms.

Survey co-operation: Social Design Class, Fukuoka Design College, Futaba Gakuen School (Toshimitsu Sadamura, Katsuki Ando, Yuha Kawauchi, Reina Kirihiro, Yu Furufuji, Chiemi Sato)

# Chapter 5

## List of key points of dementia-friendly design

To check whether the living environment is dementia-friendly, 30 points have been compiled as a checklist for each location. Use the checklist to assess the degree of dementia-friendliness in each location.

	Design points	Corridors and entrances	Living room	Dining room	Bedroom	Bathrooms and toilets	Outdoors
<b>A</b> Color (brightness) combinations	1. Increase contrast in brightness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Reduce contrast in brightness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>B</b> Utilizing signs and landmarks	3. Provide legible and easily recognizable signs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Place signs in appropriate locations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Place signs on the surface of toilet doors.					<input type="checkbox"/>	
	6. Place memorabilia that trigger positive memories in front of the own room or home.	<input type="checkbox"/>			<input type="checkbox"/>		
	7. Place distinctive landmarks in appropriate places.	<input type="checkbox"/>					<input type="checkbox"/>
<b>C</b> Adjusting lighting	8. Arrange ample lighting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	9. Allow sufficient natural light in.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	10. Adjust lighting according to the time of day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	11. Reduce unpleasant glare.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	12. Avoid shadows and dark areas in corridors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		



	Design points	Corridors and entrances	Living room	Dining room	Bedroom	Bathrooms and toilets	Outdoors
<b>D</b> Considering familiarity and security	13. Create a homely atmosphere.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	14. Create spaces where people can choose what they want to do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	15. Keep spaces clutter-free.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	16. Provide a direct view of the intended place or object.		<input type="checkbox"/>	<input type="checkbox"/>			
	17. Reduce echoes and noise in the room.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	18. Select and arrange furniture that is easy to use and accessible.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	19. Do not lock doors used by people with dementia.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	20. Make dead-ends interesting and relaxing.	<input type="checkbox"/>					
	21. Prepare a space where people can concentrate on eating.			<input type="checkbox"/>			
	22. Avoid using large or strong patterns.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	23. Place windows where people can see outside even when sat down.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	24. Position the toilet in a place that is easily seen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>E</b> Safe outdoor spaces	25. Provide safe access to and from the outdoors.						<input type="checkbox"/>
	26. Ensure that pedestrian areas are free of steps, slips and reflections.						<input type="checkbox"/>
	27. Make it easy to reach toilets from outdoors.						<input type="checkbox"/>
	28. Arrange garden furniture such as flowerbeds for enjoyable activities.						<input type="checkbox"/>
	29. Provide benches for resting and relaxing.						<input type="checkbox"/>
	30. Make it easier for children to visit.						<input type="checkbox"/>

# Chapter 6

## Initiatives in Fukuoka City

### The Dementia-Friendly City Project

Fukuoka City launched the Dementia-Friendly City Project in 2018 with the aim of becoming a city where people with dementia can live in their own way with peace of mind in their own familiar neighborhoods. The project is undertaken through industry-government-academia collaboration, incorporating the perspectives of people with dementia.

#### Dementia-friendly design

In March 2020, *Fukuoka Dementia-Friendly Design* was published to promote the development of a living environment where people with dementia, their families and carers can live peacefully and stress-free. Its principles have been used in 49 facilities in Fukuoka City, including public facilities and facilities for the elderly (as of March 2023).

Fukuoka City is promoting dementia-friendly initiatives in both physical and social environments. It has started developing dementia-friendly products in collaboration with companies and people with dementia since 2021, and implementing design in urban planning on a trial basis since 2022. The Fukuoka Dementia-Friendly Center was opened in September 2023 and provides a design showroom for general public as well as creating opportunities for people with dementia to play active roles in the society.



Cover of the first edition

#### Dementia communication and care technique Humanitude®

Humanitude® is a care method to facilitate communication with people with dementia by telling them "I care about you" in a way that they can understand. Fukuoka City started the initiative in 2018 and trained its own instructors. Courses are held for different target groups, such as local communities, children, family carers, first responders and companies, to spread and raise awareness of better care for people with dementia.



A session of the Humanitude® course

#### Fukuoka Orange Partners

Fukuoka Orange Partners, a consortium for businesses and people with dementia to voluntarily 'learn', 'think', 'collaborate' and 'act' on dementia, was established in June 2021, with 91 companies and 2 organisations registered (as of March 2023). The consortium holds study groups in which people with dementia and companies join together, and develops dementia-friendly products and services.

#### Orange Talent Bank

This is a talent bank dedicated to people with dementia. It is a part of effort to create a system where people with dementia can find purpose and hope and contribute effectively to the society. It aims to harness the expertise gained from experiences with dementia to create new values and innovation in collaboration with businesses.

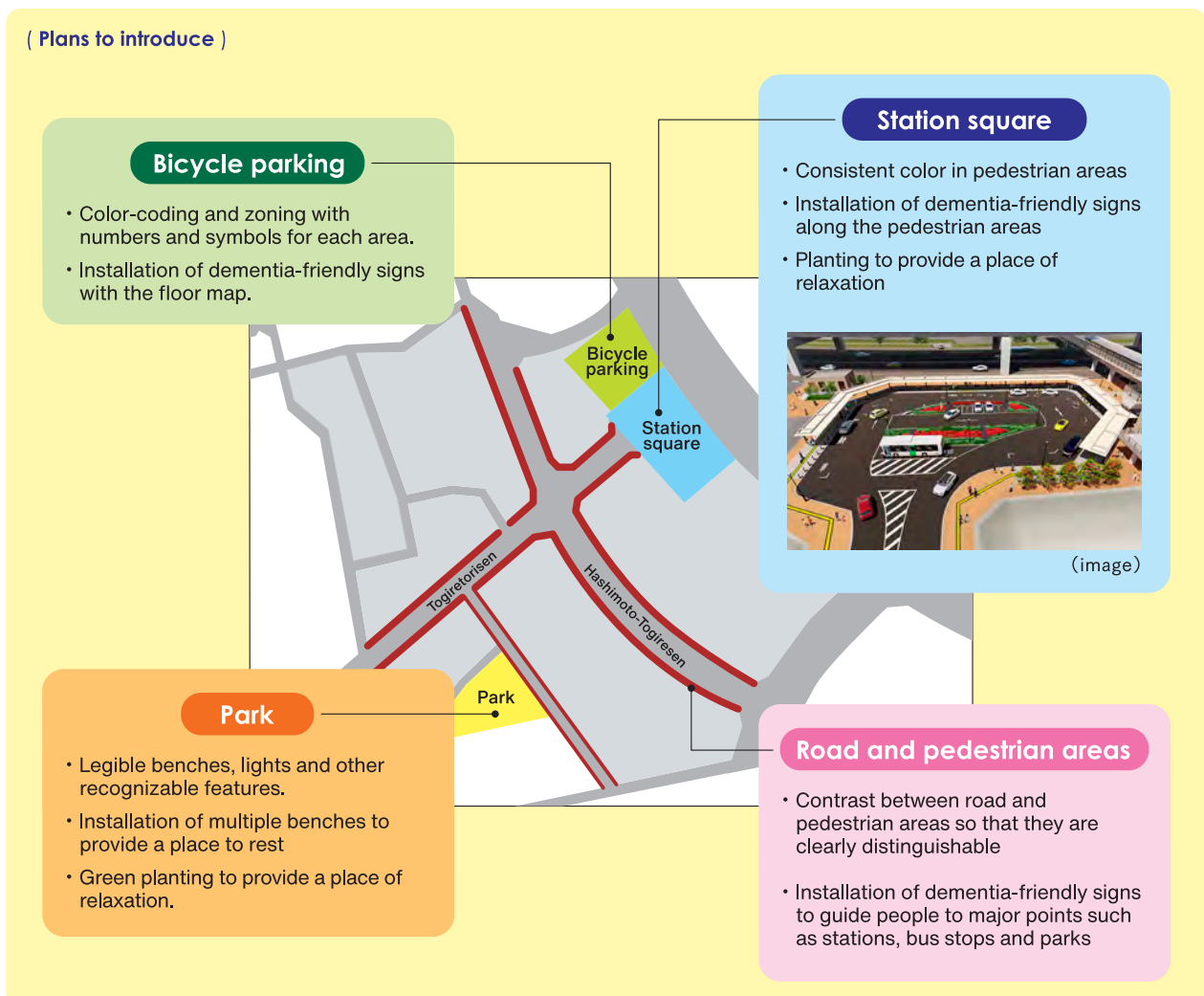
#### Fukuoka Dementia-Friendly Center

The Fukuoka Dementia-Friendly Center has been operational since 2023 as a site to empower people with dementia and showcase various initiatives in the Dementia-Friendly City Project. It provides general public and businesses in Fukuoka City with the latest knowledge and technology, and exchanges ideas and initiatives with other areas in Japan and the international communities. It can be used by anyone, including people with dementia, the community, businesses and health and social care professionals.

## Pilot introduction of dementia-friendly design into city planning

Fukuoka City launched the Fukuoka Dementia-Friendly Design (hereinafter referred to as Dementia Design) in 2018, and has been introducing Dementia Design in public facilities. The city is expanding the scope of dementia design to include outdoor areas to further realise Fukuoka City's goal of becoming a city where people with dementia can live comfortably and independently in their own familiar neighborhoods.

As there is no precedent in Japan for the introduction of dementia design in outdoor areas, it will be localised to suit Japanese people and culture with reference to good practices in domestic and international examples. A trial introduction was started in the station square and neighboring areas at Hashimoto Station, Nanakuma Line in 2022.



## Fukuoka Dementia-Friendly Center

The Fukuoka Dementia-Friendly Center was opened in September 2023 as a site to empower people with dementia and showcase various initiatives in the Dementia-Friendly City Project. It provides general public and businesses in Fukuoka City with the latest knowledge and technology, and exchanges ideas and initiatives with other areas in Japan and the international communities. Anyone is free to visit, including people with dementia, their families, local residents, and those involved in the medical, nursing, and welfare fields. It is fully equipped with dementia-friendly design and has been awarded the highest level of accreditation (Gold) by the Dementia Services Development Centre (DSDC) at the University of Stirling, UK.

### Key features

#### Active roles in the community



Creates opportunities that people with dementia can continue to play an active role in the community.

#### Social interaction



Organizes a working group of people with dementia to promote interpersonal communication and creates opportunities to encourage people with dementia and businesses to connect.

#### Learning/experience



Provides learning opportunities such as Humanitude® courses and AR experiences of dementia.

#### Information dissemination



Disseminates information on dementia, including the latest knowledge and technology, and holding of events and training.

#### Location

2nd floor, Fukuoka City Health Promotion Support Center: Airefu 2-5-1 Maizuru, Chuo-ku  
4 min. walk from Exit 3 of Akasaka Station on the Airport Line, Fukuoka City Subway

#### Open hours

Tuesdays to Saturdays  
(except national holidays and New Year's holidays)  
10 a.m. – 6 p.m.

#### Contact for enquiries

Tel: +81(0)92-791-9115  
Fax: +81(0)92-791-9550  
Email [contact@fdfc.jp](mailto:contact@fdfc.jp)



Airefu entrance.  
Please use this as a landmark.

Lounge



In order to create a calm space, homelike lighting and furniture have been selected. Brightness is ensured by bringing in natural light and arranging sufficient lighting.

Entrance



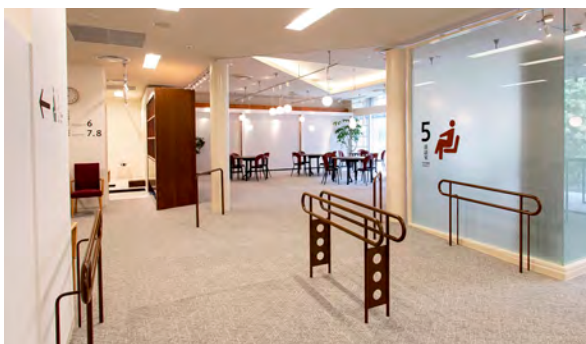
Signs in colors that contrast with the surroundings are installed so that they are easily recognizable.

Reception



It is distinctive and landmarked, while at the same time creating a warm and welcoming atmosphere for anyone who comes in.

Handrail



A distinctive and recognizable handrail has been installed to draw attention to the sloping floor.

Consultation Room



The consultation room is furnished with plants and paintings to provide a calm and comfortable space.

## Creating an inclusive living environment for people with dementia

### For people with dementia to live with dignity and hope

On 14 June 2023, the *Basic Law on Dementia to Promote a Symbiotic Society* came into force in Japan. This law was enacted to invest in the prevention of dementia and, at the same time, to create a society in which people with dementia can maintain their dignity and respect as members of society. The basic principles of the Law include: consideration for the wishes of people with dementia and their families; enabling people with dementia to play an active role in society while maintaining their dignity; and providing appropriate support for decision-making by people with dementia.

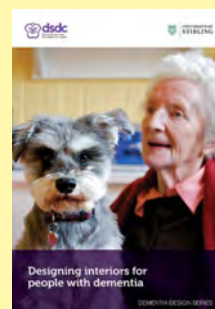
### Initiatives in response to the increase in the number of people with dementia worldwide

Initiatives in response to the increase in the number of people with dementia worldwide

The increase in the number of people with dementia due to the ageing of the population is a common issue worldwide, and countries around the world have been developing national dementia strategies.

In France, a national dementia strategy was formulated in 2001, the earliest in Europe. France is also the country where the dementia communication and care technique Humanitude® was born, and both the public and private sectors are working on dementia. Fukuoka City is also promoting this care method in cooperation with local communities and schools by holding Humanitude® Courses.

In Scotland, United Kingdom, the first National Dementia Strategy was released in 2010, and Scotland has now released four national strategies. The most recent, launched in 2023, sets out a 10-year vision, which was informed by people with a diagnosis of dementia and the most current research in dementia care, policy and environments. The University of Stirling's Dementia Services Development Centre (DSDC) is a prominent international research center on dementia-friendly environments, and was responsible for the researching, evaluating and analysing the data that underpins this new strategy. The DSDC was also responsible for the development of the Environments for Ageing and Dementia Design Assessment Tool and dementia-friendly products. This guide has been produced in cooperation with the DSDC at the University of Stirling.



### Fukuoka City to become a Dementia-Friendly City

Fukuoka City started the Humanitude® initiative in 2018, and has been conducting courses for local communities, schools and companies. In 2020, the city was the first in Japan to formulate a Guide to Dementia Friendly Design, which was adapted to Japanese culture and lifestyle, based on the findings of international research communities including DSDC at the University of Stirling. Furthermore, the Fukuoka Dementia-Friendly Center was established in 2023 and has started disseminating the latest findings not only in Fukuoka City but also in Japan and overseas.

As a leading city in dementia initiatives, Fukuoka City will continue to work towards achieving a society in which people with dementia can play an active role in their own way.

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Yufunomiya Group Home, Communal Daily Long-Term Care for a Dementia Patient, Watanabe Co.,Ltd  
Rinnai Corporation  
welzo Co.,Ltd  
Sasagurisou, Special Elderly Nursing Home, Social Welfare Corporation Shinai-kai  
Ohori Park  
QuaRijn Senior Citizens Facility de Koekoek, (The Netherlands)

City-owned facilities:

Hakata Ward Office, Jonan Ward Office, Fukuoka City Hall, City's community centers,  
Mushiroda Kaikan, Minami Civic Center, Sawara Minami Community Exchange Center (Tomoterasu Sawara),  
Jonan Ward Public Pool, Fukuoka City Subway Nanakuma Line Kushida Shrine Station,  
Fukuoka City Subway Nanakuma Line Hakata Station, Toilet at the Iki-no-Matsubara Stone Fortifications,  
Ishimaru Central Park, and Maizuru Park

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