

INCLUSIVE DESIGN: PROVIDING ACCESS TO OUTDOOR DEVELOPED AREAS IN THE USA AND THE REPUBLIC OF IRELAND

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Received:12.04.2010; Revised:12.05.2010; Accepted: 10.06.2010

*"Trails and parks are as necessary to communities
as roads, sewer systems and utility grids."*

PETER HARNICK, *Converting Rails to Trails*, 1989

Abstract

The main purpose of this publication is to present current policy, legislation, design guidelines and practices in relation to the design of outdoor developed areas in the USA and the Republic of Ireland (RoI). The paper begins with an introduction in which the importance of access for all to outdoor areas and recreation is demonstrated. It then moves on to explain the origins and definition of the term "Inclusive Design". Types of external environments and the meaning of the term "outdoor developed areas" follow. Rights to access outdoor developed areas in the USA and the RoI are outlined, and afterwards design guidelines, practices and examples of accessible outdoor developed areas are presented in more detail. Finally the paper arrives at conclusions. For further reading please refer to the end of the article.

Streszczenie

Celem tej publikacji jest zaprezentowanie aktualnego prawodawstwa, wytycznych projektowych i stosowanych rozwiązań w projektach zagospodarowania środowiska zewnętrznego w Stanach Zjednoczonych i Republice Irlandii. We wstępie artykułu uzasadniono znaczenie udostępnienia wszystkim środowiska zewnętrznego i rekreacji. Następnie wyjaśniono pochodzenie i definicję terminu „Projektowanie Inkluzywne”, po czym zaprezentowano rodzaje środowiska zewnętrznego oraz wyjaśniono znaczenie terminu „Projektowanie Zagospodarowania Środowiska Zewnętrznego”. Po zarysowaniu prawodawstwa dotyczącego dostępności zagospodarowanego środowiska zewnętrznego w Stanach Zjednoczonych i Republice Irlandii przedstawiono szczegółowe wytyczne projektowe, stosowane rozwiązania i przykłady dostępnego zagospodarowanego środowiska zewnętrznego. Na końcu artykułu zamieszczono informację bibliograficzną.

Keywords: Inclusive Design; Universal Design; Design for All; Outdoor Developed Areas Design.

1. INTRODUCTION

Participation in recreational activities is one of the most important parts of our lives. Recreation participation is enjoyable and results in the acquisition of social and leisure skills. The recreation experience builds self-esteem, reduces stress and improves quality of life. [7] Therefore, it is not surprising that everyone, including people with disabilities, want an access to recreation. A great number of recreation activities are available outdoors. Providing access to outdoor

developed areas for as many people as possible is therefore a crucial factor in providing access to recreation opportunities.

Standards usually address access to the built environment only and do not provide provisions regarding outdoor development. Such guidelines cannot be easily translated to the outdoors where there is usually less development. In the built environment the aim is to build to suit the owner and the users, while in the outdoors achieving the desired experience partially

depends on successful preservation of the natural environment. [1]

The USA is now in the process of introducing standards specifically for the developed outdoor areas thus addressing access to recreation opportunities in the natural environment.

2. ORIGINS AND DEFINITION OF THE TERM INCLUSIVE DESIGN

“Inclusive Design” is one of many terms currently in use in the built environment professions, the building industry and in the wider arena of local and central government. It shares a similar background and has similar aims to many other terms such as “Universal Design”, “Design for All”, “Lifespan Design” and, most recently, “Respect for People” and “Designing for Diversity”. [3]

“Inclusive Design” is neither a new genre of design nor a separate specialism. It is a general approach to designing in which designers ensure that their products and services address the needs of the widest possible audience irrespective of age or ability. Two major trends have driven the growth of “Inclusive Design” – population ageing and the growing movement to integrate disabled people into mainstream society. [4]

The expression “Inclusive Design” has emerged in response to the concern that the term “Universal Design” can be misleading in suggesting that it seeks “universal solutions” to problems and meets the needs of all people. In fact some of those known for their strong advocacy of “Universal Design” in the USA have recently declared a preference for the clarity of the term “Inclusive Design” (Steinfeld, Tauke 2002). [3]

“Inclusive Design” is a process that results in inclusive products or environments which can be used by everyone regardless of age, gender or disability. It is, however, an evolving and complex concept whose definition can be extended to address not only age, gender and disability, but also race, income, education, culture, etc. [3]

For the purpose of this paper where the term “Inclusive Design” is used it is understood to have the same meaning as the terms “Universal Design”, “Design for All” and “Integral Accessibility”.

3. WHAT ARE OUTDOOR DEVELOPED AREAS

The external environment covers a spectrum of both urban and natural landscapes. In the publication “Building for Everyone” [9] the external environment is divided into three main areas as follows:

Natural landscape – where buildings hardly feature, if at all. These are wild places such as mountains, rivers, beaches and bogs.

Tempered landscape – located nearer to cities and towns and appearing natural, while in fact, having been adapted for industrial endeavour like agriculture, forestry, energy, tourism or recreation. These are, for example, country parks, historic sites, woodlands, caravan and camping sites, picnic areas, arboreta, waterways, golf courses and interpretive centres. Such places are made accessible to visitors either by means of viewing points, signage and maps, or via controlled access, i.e., gates to fenced areas.

Tamed landscape – amenities within urban forms of the cities, towns and villages, such as playgrounds, cemeteries, squares, streets and sports grounds.

For the purpose of this paper the term ‘outdoor developed areas’ includes the following, as based on the USA Draft Final Accessibility Guidelines for Outdoor Developed Areas [5]:

- Camping facilities
- Picnic facilities
- Viewing areas
- Outdoor recreation access routes
- Trailheads and trails
- Beach access routes

Outdoor developed areas can contain facilities and elements, such as drinking fountains, parking areas, restrooms, play areas, boating facilities and fishing platforms.

4. RIGHT TO ACCESS TO OUTDOOR DEVELOPED AREAS IN THE USA AND THE REPUBLIC OF IRELAND

In the USA standards, such as the Americans with Disabilities Act Accessibility Guidelines (ADAAG), address access to the built environment; however, at the time of adoption in 1991 they did not provide provisions regarding outdoor development. [1] The Americans with Disabilities Act (ADA) determines the way in which public and private agencies provide recreation opportunities. This information applies to opportunities provided by units of state and local

Government, (such as parks and recreation department), private for-profit entities, (such as a health club or an adventure outfitter), and non-profit organizations, (such as a YMCA or community sports association). [7]

On 20 June, 2007, the Access Board in the USA issued a Notice of Proposed Rulemaking (NPRM) to establish accessibility guidelines pursuant to the Architectural Barriers Act (ABA) for camping facilities, picnic facilities, viewing areas, outdoor recreation access routes, trails and beach access routes constructed or altered by or on behalf of the Federal government. The NPRM was based on a Regulatory Negotiation Committee Report and was a separate, self-contained document. After a series of public hearings and consultations on the NPRM and the subsequent draft of the final accessibility guidelines, the Access Board will proceed to issue the accessibility guidelines as a final rule. These guidelines will be formatted for incorporation into the Americans with Disabilities Act and Architectural Barriers Act (ADA-ABA) Accessibility Guidelines.

Enforcement: The ADA sets out three means of enforcing its provisions. Each is different and should be chosen on a case by case basis. The author will not go into the details of enforcement procedures in this paper; however, generally speaking, the decision on how to go about enforcing the ADA provisions would depend on whom this enforcement is against (i.e., private or public entities) and the chosen route (i.e., administrative complains or court cases). [7]

In the RoI access to outdoor developed areas is governed by two sets of legislation and policy. One deals with equality and accessibility, and the other, with the conservation of both natural and cultural heritage. Legislation and policy relating to cultural conservation, such as the Heritage Act and County Development Plans, and requirements by interested or responsible bodies, such as Dúchas and Waterways Ireland, also frequently apply. [9] There are no detailed guidelines specifically addressing accessibility to outdoor developed areas available as yet.

Enforcement: The Building Control Act of 1990 sets out that the responsibility for enforcement of the building regulations rests with the designated Building Control Authorities, i.e, the thirty seven County and City Councils in Ireland. It is widely believed that the regulations are reasonably good, but that the system of enforcement is weak, and much debate surrounds the effectiveness or otherwise of the enforcement regime. [8] As for the enforcement of rights based legislation, the National Disability

Authority is calling for effective means of enforcement and remedies which are yet to be put in place. [6]

5. DESIGN OF ACCESSIBLE OUTDOOR DEVELOPED AREAS – GUIDELINES AND PRACTICE.

The most fundamental requirement for accessing outdoor developed areas is to provide information about a place. This information should ideally be available before people arrive so that they can make their own informed choices on whether the place is accessible to them or not. Published guides, the internet and helplines should communicate clearly the available standards of accessibility. [9] Presentation and content of this information are a separate issue, and are not discussed in this paper.

The author discusses design guidelines for a number of outdoor areas described in item 3. **What are Outdoor Developed Areas.** Information based on [9] and [2] is clearly marked as such, and all the other design information is as per [5]. Exceptions are not discussed in this paper, as are not the issue of required minimum numbers/ percentages of accessible facilities to be provided. All the design guidelines in this text are based on the assumption that they apply only to newly constructed or altered (maintenance excluded) facilities.

5.1. Camping Facilities

The definition of Camping Facilities, as per [5], includes the terms “camping facility” and “camping unit”. A camping facility is a site (or its proportion) developed for outdoor recreational purposes that contains camping units. A camping unit is an outdoor space in a camping facility used for camping that contains outdoor constructed features, parking spaces for recreational vehicles or other vehicles, tent pads and platforms or camp shelters. A camping unit may contain some or all of the components listed in the above definition.

5.1.1. Outdoor Constructed Features

The definition of Outdoor Constructed Features, as per [5], includes picnic tables, fire rings, fireplaces, wood stoves, trash and recycling receptacles, water hydrants, utility and sewage hook-ups, outdoor rinsing showers, benches, telescopes and periscopes provided at outdoor recreation facilities.

- Clear ground space:*
- size and location in accordance with Table 1 below, based on Table 1011.2.1. of [5]
 - surface firm and stable
 - slope not steeper than 1:48 in any direction
 - openings not to allow passage of a sphere more than 13 mm in diameter
 - elongated openings placed so that the long dimension is perpendicular to the dominant direction of travel [2]
- Operable parts:*
- placed within one or more of the reach ranges specified in [2]
 - operable with one hand and not to require tight grasping, pinching or twisting of the wrist
 - the force required to activate operable parts maximum 22.2 N
- Picnic tables:*
- wheelchair space provided min 760 mm by 1220 mm and positioned for a forward approach to the table with toe and knee clearance under the table
 - firm level surface 1500 mm wide provided around tables [9]
- Fire rings, grills, fireplaces and wood stoves:*
- fire building surfaces minimum 230mm above the ground surface
 - cooking surfaces between minimum 380mm and maximum 865mm above the ground surface
 - raised edges or walls 255mm maximum depth
- Water spouts:*
- located between minimum 710mm and maximum 915mm above ground surface at water hydrants and water utility hook-ups
- Outdoor rinsing showers:*
- at least 2 fixed shower heads provided; one positioned between minimum 1220 mm and maximum 1370 mm, and the other minimum 1830 mm, above the ground surface
- Telescopes and periscopes:*
- eyepieces centered between minimum 1090 mm and maximum 1295 mm above the ground surface

5.1.2. Parking spaces within accessible camping units and picnic units and pull-up spaces at recreational vehicle dump stations

- Recreational vehicles:*
- parking spaces and pull-up spaces minimum 6100mm wide
- Other vehicles:*
- parking spaces minimum 4880 mm wide
- Surface:*
- firm and stable
- Slope:*
- not steeper than 1:48 in any direction

5.1.3. Tent Pads and Tent Platforms

- Clear ground space:*
- provided on all usable sides
 - minimum 1220 mm wide
 - surface firm and stable
- Slope:*
- not steeper than 1:48 in any direction
- Height:*
- tent platforms maximum 485 mm high measured from the clear ground space to the tent platform surface.

5.1.4. Camp shelters:

- Clear ground space:*
- provided at the entrance to the camp shelter
 - minimum 915mm by minimum 1220mm and positioned for a parallel approach
 - one full unobstructed side of the clear ground space to adjoin or overlap an outdoor recreation access route or trail or another clear ground space
 - surface firm and stable
- Slope:*
- not steeper than 1:48 in any direction
- Floor height:*
- when elevated above the ground surface at the entrance, floor height maximum 485mm measured from the clear ground space to the floor surface of the camp shelter
- Wheelchair turning space:*
- where level entry or ramped entry provided, a circular or T-shaped wheelchair turning space complying with [2] provided

Table 1.
Clear Ground Space

Outdoor constructed feature	Minimum size and location of clear ground space
Picnic tables	<ul style="list-style-type: none"> - 915 mm wide along all usable sides of a table or a firm level surface or - 1500 mm wide around [9]
Fire rings, grills, fireplaces, and woodstoves	<ul style="list-style-type: none"> - 1220 mm by 1220 mm on all usable sides
Trash and recycling receptacles	<ul style="list-style-type: none"> - 915 mm by 1220 mm positioned for a forward approach to the receptacle opening, 760 mm by 1525 mm for a parallel approach
Water hydrants	<ul style="list-style-type: none"> - 1220 mm by 1830 mm with the long side adjoining or overlapping an outdoor recreation access route or trail, or another clear ground space
Utility and sewage hookups	<ul style="list-style-type: none"> - 760 mm by 1525 mm with the long side adjoining or overlapping an accessible parking space or pull-up space for recreational vehicles - the centre of the hook-ups located at the rear centre of the space - bollards or other barriers not to obstruct the space in front
Outdoor rinsing showers	<ul style="list-style-type: none"> - 1525 mm by 1525 mm, shower heads centered - the shower pedestal or wall with the shower head located at the rear end of the clear ground space
Benches	<ul style="list-style-type: none"> - 915 mm by 1220 mm positioned beside the bench, with one side of the space adjoining an outdoor recreation access route or trail, but not overlapping
Telescopes and periscopes	<ul style="list-style-type: none"> - 915 mm by 1220 mm positioned for forward approach - knee and toe clearances provided - eyepiece centred on the space



Figure 1.
Erecting a tent. Firm and stable surface of the clear ground space shown indicative

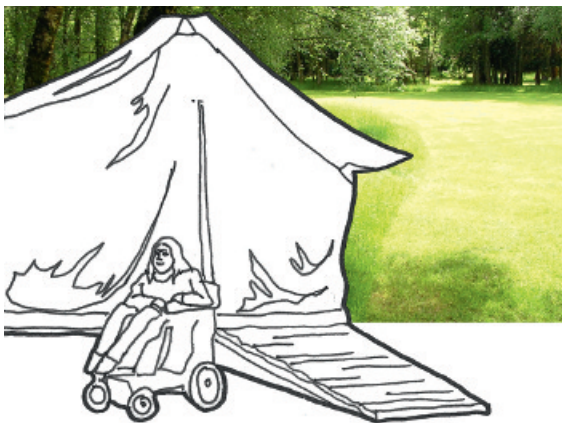


Figure 2.
Tent platform with an access ramp

5.2. Picnic Facilities

The definition of a Picnic Facility, as per [5], includes terms “picnic facility” and “picnic unit”. A picnic facility is a site (or its proportion) developed for outdoor recreational purposes that contains picnic units. A picnic unit is an outdoor space in a picnic facility used for picnicking that contains outdoor constructed features (also refer to item 5.1. **Camping Facilities** above). A picnic unit can contain only one outdoor constructed feature for example, a picnic table or a grill. [5]

Recreation access routes in picnic facilities should connect all the accessible outdoor constructed features, elements, spaces and facilities of each accessible picnic unit. [5] They should also connect common use and public use areas that serve the accessible picnic unit to any recreation facility adjacent to the picnic facility.

Picnic areas should be located in sheltered microclimates with the option of shade for people with sensitive skin. [2]



Figure 3.
Picnic facility in Bray, Co. Wicklow, RoI

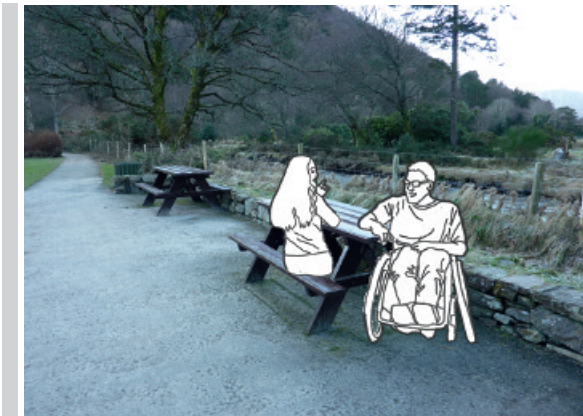


Figure 4.
Picnic facilities in Glendalough, Wicklow Mountains, RoI

5.3. Viewing Areas

Viewing areas are defined in [5] as outdoor spaces developed for viewing a landscape or a point of interest such as a mountain range, a waterfall or a valley. They may be a part of a walking trail or separate features. These are popular places for people to enjoy the natural landscape without having to move through it and are often located close to car parks.

Clear ground space:

- provided at each distinct viewing location
- minimum 915 mm by minimum 1220 mm
- positioned for either forward or parallel approach
- one full unobstructed side of the clear ground space to adjoin or overlap an outdoor recreation access route or trail or another clear ground space

Unobstructed view:

- surface firm and stable
- provided between 815 mm and 1295 mm above the clear ground space; the entire side of this space to face the landscape or the point of interest
- a safety barrier, 920 mm high, to be provided, and gaps in railing to be no less than 100 mm [9]

Wheelchair turning space:

- a circular or T-shaped turning space complying with [2] provided within viewing areas
- surface firm and stable

Slope:

- not steeper than 1:48 in any direction



Figure 5.
Viewing area in the Dublin ZOO, RoI



Figure 6.
Viewing area at the Brien's Tower, Cliffs of Moher, RoI

Table 2.
Running slope and resting intervals

Running slope of segment of outdoor recreation access route		Maximum length of segment between resting intervals
Steeper than	But not steeper than	
1:20	1:12	15 m
1:12	1:10	9 m

5.4. Outdoor Recreation Access Routes

The requirements for outdoor recreation access routes depend on their location. The author discusses these requirements in more detail in the paper under the location headings: camping facilities, picnic facilities, viewing areas and trailheads.

Camping and picnic facilities, viewing areas and outdoor constructed features provided on trails are connected to a trail, and are therefore not required to be connected to an outdoor recreation access route. [5]

Surface: • firm and stable

Clear width: • minimum 915 mm

Passing spaces: • if the clear width of an outdoor recreation access route is less than 1525 mm then passing spaces provided at intervals of 61 m maximum

- size: a clear space of 1525 mm minimum by 1525 mm minimum or the intersection of two outdoor recreation access routes providing a T-shaped turning space as per [2]

Obstacles: • obstacles not to exceed 13 mm in height for concrete, asphalt or boards surfaces, 25 mm for other surfaces

Openings: • openings not to allow passage of a sphere more than 13 mm in diameter

- elongated openings placed so that the long dimension is perpendicular to the dominant direction of travel [2]

Slopes: • running slope of any segment not steeper than 1:10

- where the slope of a segment is steeper than 1:20, its maximum length in accordance with Table 2, based on Table 1016.7.1. of [5], and a resting interval to be provided at each end of the segment
- cross slope not steeper than 1:48 for concrete, asphalt or boards, and not steeper than 1:33 for other surfaces

Resting intervals:

- minimum 1525 mm long
- at least as wide as the widest segment of the outdoor recreation access route leading to it or, if provided adjacent to it, the clear width minimum 915mm
- slope not steeper than 1:48 for concrete, asphalt or boards, 1:33 for other surfaces, in any direction
- sheltered, for instance beside a wall or existing vegetation [9]
- turning space complying with [2] provided

Protruding objects:

- constructed elements to comply with [2]



Figure 7.
Outdoor recreation route, Glendalough, Co. Wicklow, ROI



Figure 8.
Outdoor recreation route, Glendalough, Co. Wicklow, ROI

5.5. Trailheads and Trails

Trailheads are defined in [5] as outdoor spaces developed to serve as an access point to a trail, excluding junctions of two or more trails with no other access point.

Provision of appropriate new signs is required at trailheads. The signs are to include information on the length of the trail or its segment, type of surface, typical and minimum tread width, and its typical and maximum running and cross slopes. [5] Information on the average time it takes to complete a circuit should also be provided. [9]

An outdoor recreation access route is required to connect accessible parking spaces, or other site arrival points, to the accessible outdoor constructed features, elements, spaces and facilities within the trailheads.

Trails are defined in [5] as pedestrian routes developed primarily for outdoor recreational purposes, excluding any pedestrian routes developed primarily to connect elements, spaces or facilities within a site. There are also shared-use paths that are developed for use by pedestrians and other groups, such as cyclists. However requirements for these are not discussed in this paper.

- Surface:* • firm and stable
- Clear width:* • minimum 915 mm
- Passing spaces:* • if a trail has a clear width less than 1525 mm then passing spaces at intervals of maximum 300 m provided
- passing spaces and resting intervals can overlap
 - size: a clear space of minimum 1525 mm by minimum 1525 mm or the intersection of two trails providing a T-shaped space complying with [2]
- Obstacles:* • obstacles not to exceed 13 mm in height for concrete, asphalt or boards surfaces, 50 mm for other surfaces
- Openings:* • openings not to allow passage of a sphere more than 13mm in diameter
- elongated openings placed so that the long dimension is perpendicular to the dominant direction of travel [2]

Slopes:

- running slope: no more than 30 percent of the total length of the trail steeper than 1:12
- no segment of a trail steeper than 1:8
- where a segment is steeper than 1:20 its maximum length in accordance with Table 3 below, based on Table 1017.7.1. of [5], and a resting interval to be provided at each end of the segment
- cross slope not steeper than 1:48 for concrete, asphalt or boards, 1:20 for other surfaces

Resting intervals:

- minimum 1525 mm long
- at least as wide as the widest segment of the trail leading to it or, if provided adjacent to it, the clear width minimum 915 mm
- slope not steeper than 1:48 for concrete, asphalt or boards, 1:20 for other surfaces, in any direction
- sheltered, for instance beside a wall or existing vegetation [9]
- wheelchair turning space complying with [2] provided

Protruding objects:

- constructed elements to comply with [2]

Gates

and barriers:

- where constructed to control access to trails, their clear width minimum 815 mm and minimum 915 mm, if openings more than 610 mm deep
- the gate hardware to comply with [2]
- the opening mechanism robust but easy to grip and manoeuvre [2]
- the path to extend 500 mm to the side of the gate
- clear width of the approach to the gate minimum 2000 mm

5.6. Beach Access Routes

A beach is a designated area along a shore which provides pedestrian entry for the purpose of water play, swimming or other water shoreline activities. Coastal areas, inland lakes, ponds and rivers all have beaches. [1] Shorelines are dynamic by nature and their surfaces are not generally firm and stable. The surfaces may vary from sand to soil, gravel, grass and other. As a result providing access to beaches for people with

Table 3.
Running slope and resting intervals

Running slope of trail segment		Maximum length of segment between resting intervals
Steeper than	But not steeper than	
1:20	1:12	61 m
1:12	1:10	9 m
1:10	1:8	3050 mm



Figure 9.
Walking trail in the Wicklow Mountains, ROI

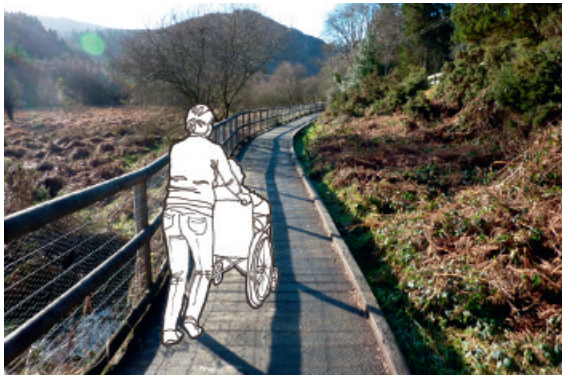


Figure 10.
Walking trail in the Wicklow Mountains, ROI

disabilities is a complicated issue. [1]

A beach access route is a continuous unobstructed path designated for pedestrian use only which crosses the surface of the beach. [1] A beach access route is required to be in the same area as the general circulation path to the maximum extent feasible. Steeper slopes are only allowed for short distances, and are therefore not acceptable in case of access routes for the built environment. [5]

- Connections:**
- to connect an entry point to the beach to the high tide level at tidal beaches, mean high water level at river beaches or normal recreation water level at lake, pond or reservoir beaches

- Surface:**
- firm and stable
 - can be flexible and temporary, for example made from timber or recycled plastic boards or mats [9]
- Clear width:**
- minimum 1525 mm
- Obstacles:**
- obstacles not to exceed 13 mm in height for concrete, asphalt or boards surfaces, 25 mm for other surfaces
- Openings:**
- openings not to allow passage of a sphere more than 13 mm in diameter
 - elongated openings placed so that the long dimension is perpendicular to the dominant direction of travel [2]
- Slopes:**
- running slope not steeper than 1:10
 - where a segment is steeper than 1:20 its maximum length in accordance with Table 4 below, based on Table 1018.7.1. of [5], and a resting interval provided at each end of the segment
 - cross slope not steeper than 1:48 for concrete, asphalt or boards, 1:33 for other surfaces
- Resting intervals:**
- size 1525 mm by 1525 mm minimum
 - not steeper than 1:48 for concrete, asphalt or boards, 1:33 for other surfaces, in any direction
 - sheltered, for instance beside a wall or existing vegetation [9]
- Protruding objects:**
- constructed elements to comply with [2]
- Elevated dune crossings:**
- when part of beach access routes, handrails and edge protection complying with [2] provided

Table 4.
Running slope and resting intervals

Running slope of segment of beach access route		Maximum length of segment between resting intervals
Steeper than	But not steeper than	
1:20	1:12	15 m
1:12	1:10	9 m

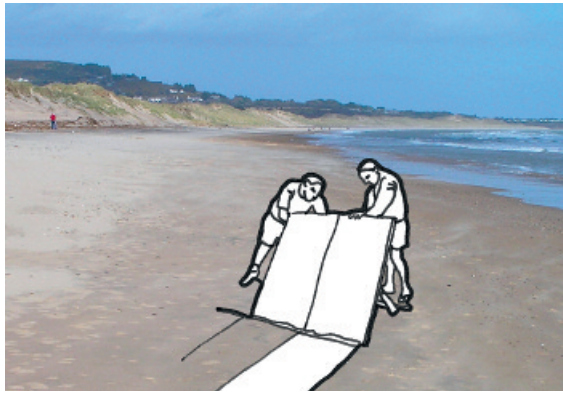


Figure 11.
Temporary beach access being put in place, Brittas Bay, Co. Wicklow, ROI

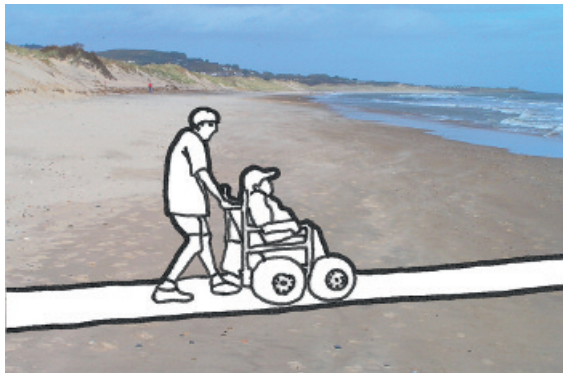


Figure 12.
Beach access, Brittas Bay, Co. Dublin, ROI

6. CONCLUSIONS

Demographic change is a major challenge to the design profession. There are already 130 million people over 50 years of age in the European Union. By 2020 one in two European adults will be over that age. [4] The effects of rapidly ageing population and growing number of people with disabilities are having a profound effect on every aspect of our lives. The need for a more socially inclusive approach to designing is rising up.

At the moment architectural design efforts concentrate on addressing accessibility of the built environment and, in particular, buildings used by the public and large number of people. However, our environment is not limited to these areas alone and it is important that the accessibility of the environments, that we both have

to and choose to spend our time in, is treated with equal seriousness and attention to detail.

One of the environments that most people choose to frequent and enjoy in their spare time is the outdoors. Unfortunately all too often this environment is either not accessible or only partially accessible to a vast number of people. Therefore the author feels that discussing the law and design guidance available in the USA in the context of the European Union situation in the same area, on the example of the Republic of Ireland, may bring the design of all outdoor areas one step closer towards being accessible to all.

Partial access is better than none. [9] Full access is better than partial.

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