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A qualitative study on how Danish landscape architectural firms understand and work with accessibility

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Abstract

During the past decade Danish policies and legislation have increasingly focused on accessibility, which, by virtue of adopting the UN Sustainable Development Goals, has spurred new demands for the expertise of Danish landscape architects. Surveys indicate as much as 27% of the Danish population have a physical disability. Therefore, landscape architectural firms play an important role in designing accessible, public, and green spaces, which could reduce the number of people who experience disability in their everyday life arising from inaccessible designs. Despite this, peer reviewed research has not attempted to qualitatively understand how landscape architects approach accessibility in their daily practice. Based on a grounded theory analysis of 15 semi-structured qualitative interviews with randomly selected landscape architectural firms, this study aims to describe how landscape architectural firms approach and perceive accessibility. The results of the study show a complex understanding of accessibility among practising landscape architects with firms focusing on the role of Danish building regulations, the programming of accessibility, and professional aesthetic dilemmas. Moreover, accessibility is perceived with some frustration as an element that takes valuable space from green areas due to clients' lack of willingness to provide resources for integrated solutions, landscape architects' own limited expertise and knowledge of integrated accessibility solutions, and insufficient regulatory leeway. As accessibility is a major element of the tasks within contemporary landscape architecture, graduates need additional training in accessibility, which in turn necessitates additional research into accessible design solutions.

Keywords: Accessibility; Design practice; Policies; Public green spaces; Regulations; Sustainability

1. Accessibility, a professional responsibility of landscape architects?

New light was shed on accessibility to public and green spaces when all member countries of the United Nations (UN) agreed on 'The 2030 Agenda for Sustainable Development' in 2015 (UN, 2015). In this context, Sustainable Development Goal (SDG) 11 'Sustainable cities and communities' relates to the built environment and seeks to create cities that are "inclusive, safe, resilient and sustainable" (UN, 2020). Specifically, target 7 of SDG 11 aims to provide "universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities" by 2030 (UN, 2020). This is backed up by the World Health Organisation (WHO), which states that access to urban green space can provide healthy, sustainable and liveable cities for everyone, particularly the disadvantaged members of society (WHO, 2017). Moreover, the 'Leave No One Behind' (LNOB) pledge is an attempt to ensure that no groups are 'left behind', as the UN committed itself to work towards the goals embedded in the SDGs (UN, 2019). As over one billion people around the world live with some form of disability – a number which continues to grow due to demographic trends such as ageing populations and a rise in chronic health conditions (WHO, 2018) – the landscape architectural

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4 profession has become crucial for in integrating accessibility into the designs of public green
5 spaces.
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8 This is equally important as disability, according to the WHO, refers to a situation in which
9 contextual factors (such as physical settings) prevent a person with a health condition from
10 engaging in a particular activity (WHO, 2018). In other words, disability becomes apparent in the
11 context of landscape architecture when a physical environment is incompatible with a person's
12 functional condition, thus creating physical barriers to this person participating in society and
13 everyday life at the same level as everyone else (UN, 2006). As a result, physical spaces can
14 determine whether a person with a particular health condition experiences a disability (Boys,
15 2014). As we increasingly inhabit urban areas across the globe, this necessitates an enhanced
16 understanding of the complexities of designing accessible public spaces (Imrie, 1996, Kajita,
17 2016), as an issue to be dealt with by practising landscape architects (Corazon *et al.*, 2019,
18 Gramkow *et al.*, 2021). With this in mind, previous research has criticised architecture and
19 landscape architecture, claiming that the profession's accessibility solutions work primarily as
20 'prosthetic devices' intended to address specific issues rather than to accommodate the bodily
21 differences of human beings (Fitzsimons, 2017). In other words, research indicates that
22 accessibility is not perceived by landscape architects, as it is by the UN and recent literature, as a
23 way to design public and green spaces to accommodate as many types of individuals as possible.
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28 As such, most existing literature has remained critical of how landscape architects and architects
29 perceive and approach accessibility (Grangaard and Gottlieb, 2019, Sørensen Overby, 2018), with
30 other research emphasising that it is unreasonable to expect architects to become disability experts
31 (Kirkeby, 2015), as researchers have emphasised that such 'expertise' will never truly represent
32 the lived experiences of users with disabilities (Sørensen Overby and Ryhl, 2018, Ryhl, 2018).
33 What this literature lacks is a detailed, empirical description of how landscape architects perceive
34 accessibility as part of their work practices, indicating a clear gap. Such studies in the field are
35 noticeably absent from published peer-reviewed sources both within a Danish context and abroad.
36 This knowledge gap is made all the more important to fill, as Denmark's new building regulations
37 (BR18) have come into effect since the articles quoted in the above quoted were published. This
38 study is not opposed to the existing criticism but emphasises the need to understand the pragmatic
39 reality of landscape architects. Accessibility is one of dozens of daily issues facing landscape
40 architects, and looking at accessibility from a practitioner's perspective requires the landscape
41 architectural firm to be acknowledged as an interdependent player in a vast building sector
42 (Yaneva, 2009). Thus, this study will inquire: *How do Danish landscape architectural firms*
43 *perceive and approach accessibility in their daily professional practice?*
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49 *Danish Architectural Policies and Regulations*

50 In addition to Denmark's commitments as part of the UN, Denmark ratified the Convention on the
51 Rights of Persons with Disabilities (CRPD) in 2009, which guarantees that people with disabilities
52 have the right to not be discriminated against because of their disability (UN, 2006). With around
53 27% of the Danish population perceiving themselves to have some sort of physical disability
54 (Amilon *et al.*, 2017), the subject of accessible landscape architecture for people with disabilities
55 has not lost its importance since these international and national commitments were entered into.
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4 At national level, Denmark has published architectural policies in 1994, 2004, and most recently
5 in 2014 entitled 'Putting People First' (The Danish Government, 2014). Accessibility is mentioned
6 in all three policies to some extent, with the most recent policy stating that architecture should
7 take account of environmental, social and cultural sustainability (The Danish Government, 2014).
8 Furthermore, the policies state that architects and landscape architects can contribute to social
9 sustainability by creating diverse areas that are accessible to everyone, including people with
10 different types of disabilities (The Danish Government, 2014). At municipal level, Grangaard
11 (Grangaard, 2018) found that 34 out of 98 Danish municipalities have formulated an architectural
12 policy but only eight of these mention accessibility, demonstrating a difference between national
13 and municipal architectural policies. This is important since in many cases it is up to Danish
14 municipalities to manage the regulatory actions for approving new landscape architectural projects
15 and draw up local development plans, in addition to the Danish municipal sector being a major
16 client for landscape architectural work.
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21 As a result of Denmark signing the CRDP, four organisations related to the profession of landscape
22 architecture – the Danish Association of Architectural Firms, the Danish Association of
23 Architects, the Association of Danish Landscape Architects and Design Denmark – developed and
24 agreed on a common policy for accessibility in 2010 (revised in 2013) (The Danish Association
25 of Architectural Firms, 2013). The policy is based on the articles of the CRDP that are directly
26 linked to pursuit of the architectural profession in the areas of planning, building and design and
27 which are intended “[...] to promote awareness among architectural and design firms of the
28 optimum degree of accessibility for everyone and how to achieve this, as well as the diversity of
29 such accessibility, in a manner that embeds the accessibility as a logical, integral part of the
30 architecture and design [...]” (The Danish Association of Architectural Firms, 2013). The policy
31 was agreed on by the organisations to highlight the fact that creating accessibility is part of the
32 sector's social responsibility and overall focus on sustainability. Furthermore, the BR18
33 implemented significant changes in terms of mandated accessibility solutions in public urban and
34 green spaces, including requirements for level-free access to all buildings, tactile markers for
35 people with visual impairments, along with several regulations on, for instance, the maximum
36 slope of ramps (Trafik-, 2020).
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41 *The study's international relevance for accessibility in landscape architecture*

42 Similar guidelines and regulations have been adopted by the European Union (European
43 Commission, 2021) and in many other nations around the world. We forego a comparative
44 discussion of these as this study investigates how practising landscape architectural firms interpret
45 and operate with accessibility in their work. Previous Danish research has emphasized the need
46 for such qualitative in depth enquiries (Amilon *et al.*, 2021). The goal is thus to provide a more
47 nuanced understanding of accessibility as an element of growing importance within landscape
48 architecture by providing a contextual and qualitative investigation.
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53 There has been a national adaptation of accessibility as an important issue within both politics and
54 industry. However, as Grangaard indicates in her study (Grangaard, 2018), the municipal
55 adaptation of disability as an important architectural issue has been significantly lacking. It is clear
56 that architects, urban planners, landscape architects and others involved in the design of physical
57 environments have an obligation and a responsibility to create accessible spaces in Denmark and
58 other countries to live up to their international and national political ambitions. However, no
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4 research has attempted to understand how these obligations imposed on landscape architects have
5 impacted their efforts involving and opinions of accessibility amongst practising landscape
6 architects. This is the gap this article wishes to fill.
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9 **2. Methodology**

10 This study employed semi-structured qualitative interviews with landscape architects experienced
11 in project management to represent randomly selected Danish landscape architectural firms.
12 Methodologically, this study employs an inductive, qualitative approach inspired by grounded
13 theory since there was an explicit interest in understanding the experiences (Chapman *et al.*, 2015)
14 of practising landscape architects when dealing with accessibility in their firms. To explore
15 possible differing experiences across various firms in the Danish landscape-architectural
16 profession, the study interviewed respondents in firms of different sizes. This study is interested
17 in presenting the breadth of experience possessed by landscape architectural firms which have
18 accessibility as an aspect of their work and does not seek to present a representative view of the
19 Danish landscape architectural profession as a whole.
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24 **2.1 Selection, recruitment and data collection**

25 The participating firms were selected from a gross list (N=76) gathered from the Danish
26 Association of Architectural Firms' member list (Danish Association of Architectural Firms).
27 Additionally, for firms to be eligible for the study, they had to A) employ landscape architects; B)
28 carry out both designs and full technical drawings (full projects); and C), be involved in the design
29 of public green spaces. Furthermore, the firms had to have a working website to ensure that the
30 firms were still active and to provide contact details for email invitations. Three offices were
31 removed from the list because the authors are affiliated with them. To ensure that the study
32 represented a wide selection of firms, the gross list was segmented according to the number of
33 full-time employees of each firm in Denmark. This segmentation followed the official registry of
34 company size used by Statistics Denmark (FSR - Danske revisorer, 2021) with micro companies
35 having 0-9 employees, small companies 10-49 employees, medium companies 50-249 companies,
36 and big companies from 250 employees.
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40 The study comprises 15 interviews evenly spread across company sizes, except for the category
41 of big companies, only a few of which exist in Denmark. Due to some firms not wishing to
42 participate, a total of 21 micro and small companies, and seven medium-sized and big companies
43 were invited to participate in the interviews via email. The two largest and two smallest categories
44 of companies have been collapsed in this description for reasons of anonymity. Nine micro and
45 small companies, and six medium-sized and big companies (N=15) participated in the study. The
46 interviewed companies were located throughout Denmark.
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49 *Selection of respondents and data collection*

50 Interviews were conducted in spring 2021, recruitment began via email in late winter 2021, and
51 all firms received at least two reminders before a replacement company of the same size was
52 randomly selected. The email emphasised that respondents did not have to be experts in
53 accessibility. All respondents were appointed to partake in the interviews by the firms. The
54 respondents interviewed during the study had 9 to 29 years of experience within all phases of
55 landscape architectural processes, as practising landscape architects with 3 to 27 years in the
56 company they represented in the interviews (Table I). The respondents had educational
57 backgrounds from the University of Copenhagen, the Aarhus School of Architecture, and the
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Royal Danish Academy, thereby representing all the institutions that train landscape architects in Denmark. Three had completed further study programmes as accessibility auditors, a postgraduate programme for certifying professionals in assessing compliance with the accessibility requirements of the building code. All interviews were conducted and recorded online (Zoom or Microsoft Teams).

INSERTTABLE1

Table I: List of interviews, stating the company size, work experience level of the respondents and whether they have completed a study programme in accessibility

Respondents were asked for permission to record the interviews via email. In the beginning of each interview, all respondents were informed about their right to anonymity, their right to withdraw their consent, and assurance that their data would be stored safely and deleted, pursuant to Denmark's GDPR laws. All respondents gave their verbal consent to this in the beginning of interviews, in addition to signing a written consent form after the interview.

2.2 Analysis, validity and saturation

To ensure comparability across the interviews and the validity of the findings, identical questions following a specific order were developed as an interview guide for all interviews. The interview guide was tested in a pilot interview before data collection began, which did not lead to revisions. In the following order, the interview guide included questions about: 1) background and years of work experience; 2) experience of working on accessibility; 3) Danish building regulations; 4) education; 5) national and international accessibility policies; 6) people with disabilities' special experiences; and 7) opinions about accessibility as a topic for the landscape architectural profession. The interviews lasted from 30 to 70 minutes, with most lasting around 60 minutes. They were transcribed by two student assistants before the analysis began. All quotes are translated from Danish into English by the authors.

To uphold the inductive approach intended for the study, the interviews were coded following the completion of all the interviews by the first and second author independently of each other. This resulted in 30 codes with between 6 and 158 references, which could be grouped within four reappearing themes: A) work practices and accessibility; B) building regulations; C) sustainability and social responsibility; and D) view of aesthetics and people with disabilities. Moreover, to not influence respondents' answers, 'accessibility' (*tilgængelighed* in Danish) was never explicitly defined during the interviews or recruitment process by the authors. Doing so would have challenged the study's validity by presenting a pre-existing theoretical understanding of accessibility within which the analysis would have to fit (McGrath et al., 2019).

In grounded theory, the choice of semi-structured interviews lends primacy to the narrated experiences of respondents (Chapman *et al.*, 2015). This means that the validity of a study relies upon its ability to represent and analyse the literal words spoken by respondents (Stierand and Dörfler, 2016). As such, the study also limits itself to uncovering respondents' experiences of practices, not the actual practices (Eliasoph and Lichterman, 2003). In employing qualitative interviews with experienced practitioners, we gain insight into the aggregated and post-rationalised experiences (Mason, 2002). This is important for reaching data saturation and thus for

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4 the study to make claims at answering its research question. By interviewing experienced
5 respondents within a fairly narrow professional field about a specific element of their daily work,
6 the study constructed a situation in which a comparatively small number of interviews could
7 potentially lead to data saturation (Aldiabat and Le Navenec, 2018). In practice, ‘code saturation’
8 was reached, as no new codes limited to one or two interviews were constructed during the
9 analysis, and ‘meaning saturation’ was achieved as the last few interviews did not lead to
10 respondents narrating experiences unlike those of previous respondents (ibid., p. 248). This allows
11 the study to make claims under the condition that individual respondents are not held responsible
12 for this study’s conclusions. In other words, the responsibility for conclusions derived from the
13 experiences of respondents rests with the researchers, including any and all potential negative
14 consequences (Muniesa, 2018).
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19 3. Results

20 The study presents the results according to seven topics deemed particularly important and
21 prevalent. The first and most widely discussed of these topics relates to 1) Danish building
22 regulations (BR18). This topic includes a discussion of the following: a) consulting and
23 negotiating clients’ wishes; b) professional and official interpretations; and c) spatial context and
24 elasticity. The other topics described below include: 2) user experience and disability; 3)
25 accessibility and aesthetics; 4) knowledge and education; 5) evaluation; 6) interpreting
26 ‘accessibility’ as a concept; and 7) sustainability.
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30 In addition, two defining continuums along which firms could be loosely positioned became
31 apparent during the analysis. This resulted in Figure 1 below, in which the 15 interviewed firms
32 are positioned according to whether they apply a strict or elastic interpretation of BR18 in matters
33 of accessibility (see section 3.1) on a horizontal axis. The vertical axis positions firms according
34 to whether they apply a loose or strict programme to matters of accessibility when designing
35 spaces (see section 3.2). ‘Programme’ in this context is defined as the functions a given site must
36 include and how the landscape architects intend that the users of the site engage with it. Figure 1
37 makes it possible to identify firms in relation to one another, thus granting a visual representation
38 of some of the study results. Moreover, it serves to illustrate the importance of BR18 in matters of
39 accessibility and to identify the important finding that no firm applied both a literal interpretation
40 of BR18 and a loose programme to projects. Another finding, made interesting when visually
41 presented through Figure 1, is that firms with an explicit emphasis on accessibility in their
42 professional practices are not positioned close to one another. One example is that interviews 8,
43 11, and 12 – all with accessibility auditors – are positioned apart from one another on the two
44 continuums mapped out in Figure 1. With this in mind, it is important to stress that the study in its
45 analysis could not find any correspondence between a firm’s position on Figure 1 and a firm’s
46 professional focus on accessibility.
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54 *Figure 1: Based on the interviews, the 15 landscape architectural firms were placed in the*
55 *diagram according to whether they apply a literal or elastic interpretation of BR18 and whether*
56 *they apply a strict or loose programme to matters of accessibility.*
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3.1 Building regulations

Generally, all respondents were extremely mindful of pointing out that they comply with the building regulations governing accessibility and otherwise. Many respondents point out that ensuring projects will adhere to accessibility regulations comes at an early stage in projects. However, for many firms this early focus on accessibility does not correspond with a comparable professional interest in accessibility. Rather, prioritisation of accessibility regulations in early stages of projects comes from economic incentives, as experience has taught project managers that accessibility can prove to be a major burden in subsequent stages of the design process if it is not properly accounted for earlier: “(...) *your ass is on the line if you don't know how to handle it [accessibility regulations]*” (Interview 8). This is further elaborated in other interviews, as it is mentioned multiple times that late stage ‘add-on’ [1] accessibility solutions are time-consuming for the firm and can significantly diminish the quality of the built project.

Most often, a project's vulnerability to add-on solutions is mentioned in connection to level-free access, specifically focusing on the maximum inclination of ramps and other modes of access. Moreover, challenges with level-free access occur often in urban environments in which stormwater management, disability parking, fire safety, and other technical or regulatory elements, compete for square metres with the public green spaces that the interviewed firms consider their professional priority. With this priority in mind, the majority of respondents agree with the ‘good intentions’ behind accessibility requirements and that these requirements can serve as a guide in terms of design, but they also state that requirements can seem inflexible in local contexts. In other words, respondents regard accessibility regulations as an integral aspect of current regulations to which the profession must adhere. Consequently, accessibility is regarded by most respondents as a technical element of their projects, not an aesthetic or programmatic element, or indeed a subject which merits particular professional attention. This is a consequence of BR18 which some of our respondents regret and wish to change, as will be elaborated on later.

3.1.1 Consulting and negotiating clients' wishes

Through their professional role as consultants for clients in most projects, it is often necessary for firms to mobilise legal or financial arguments for including accessibility as a key design aspect. To some of the interviewees, these arguments are based on a desire to protect the project's finances as best as possible. Referencing e.g. BR18's requirement of level-free access, they express that it is crucial for a project's financial costs to consider accessibility as early as possible in a project. For others, BR18 is mobilised as an argument for prioritising accessibility higher than the client's expressed wishes. In such cases, respondents said they would base their arguments on legal justifications, claiming that regulatory authorities will not approve a building permit that does not adhere to BR18: “(...) *when regulations are not just a guiding principle, but become actual demands, we have a better position. [...] they [the client] can't always see the necessity of accessibility solutions as part of the projects. I think it is difficult to argue against a client*” (Interview 10).

What became apparent through our interviews is that awareness and prioritisation of accessibility varies widely. However, a common feature is that the consultancy role of the profession weighs heavily on the interaction between the firms and their clients. In this relationship, BR18 plays an important role as mediator for the arguments firms can muster when negotiating clients' wishes for how to design projects to include accessibility. This is evident from an example in one

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4 interview, in which a firm requested a letter from a client disclaiming the firm's advisory
5 responsibility regarding a specific accessibility design choice. In this instance, the landscape
6 architects were unable to convince the client to agree to a solution which the architectural firm
7 believed conformed to BR18. This disrupted the collaboration to a much more serious degree than
8 the disagreements mentioned in other interviews covering topographic, aesthetic, or other
9 landscape architectural elements.
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12 13 **3.1.2 Professional and official interpretations**

14 Many respondents point out that in many projects, the approval of accessible designs depends on
15 the local municipality. This means that as project managers the respondents believe it is more
16 resource efficient to enter a dialogue with the municipality responsible for the regulatory approval
17 of the project than attempting to follow BR18 to the letter. BR18 contains several formulations
18 which are either vague or, if taken literally, a significant hindrance to the landscape architectural
19 firm's design practices. This means that several respondents recount experiences from cooperating
20 with specific municipalities, or indeed with individual officials, which severely influenced the
21 number of hours and outcome of accessibility as an element in the design: "(...) *in one*
22 *municipality you can sense they aren't even interested in this [accessibility], and then you come*
23 *to another municipality where they might have a specialist working on it which could make the*
24 *whole project fall short. It seems there is something about municipal management which is slightly*
25 *random and mainly determined by who their designated case officer is.*" (Interview 7).
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30 31 **3.1.3 Spatial context and elasticity**

32 A theme of many interviews is that although firms seek to follow BR18, the rules often appear
33 arbitrarily founded or without logic in the individual site-specific context: "*It's not that common*
34 *sense doesn't play a role, but sometimes it [BR18] has a tendency to be very definite, without*
35 *taking account of the context,*" (Interview 14). A few respondents express that they actively
36 challenge regulations, either by referring to other standards (e.g. European), or simply by
37 interpreting the rules in the loosest possible sense. Frustrations such as these caused one
38 respondent to explicitly, and many others to implicitly, wish for more elasticity in BR18: "*It*
39 *[maximum ramp inclination, etc.] is 50 per-mil right now. I mean, why not it 60? This would*
40 *actually make a real difference in terms of design and solutions. Is it true that current standards*
41 *have no elasticity?*" (Interview 7). The wish for elasticity and conformity with existing spatial
42 contexts was strongly expressed by respondents when referring to projects that refurbished spaces
43 of historical significance and, more generally, when projects had to conform to strongly
44 established, local, spatial settings. In such cases, some landscape architects, even those who are
45 otherwise keenly focused on accessibility, remarked that spatial design alone could not eliminate
46 the exclusion that people with disabilities might feel.
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50 Most respondents with a strong opinion about the role of accessibility in building regulations
51 actively challenged BR18, as they did not believe it provided tools for designing the best spatial
52 experiences for people with disabilities. As such, one firm with an explicit professional focus on
53 accessibility criticised BR18 for its 'minimum standard' solutions and lack of flexibility. In their
54 practice, this firm would instead employ standards from the European Union, in effect attempting
55 to follow as few of the BR18 provisions as possible. Conversely, several other respondents
56 expressed a professional belief that projects closely conforming to current buildings regulations
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will be cognitively and physically degrading to persons with disabilities, again necessitating an elastic, contextual interpretation of the regulations.

3.2 User experiences and disability

Most landscape architectural firms share a desire to integrate accessibility solutions into the design to the greatest extent possible: *“With a good solution, you won’t need a disability sign because it [accessibility] is wholly integrated. The problem has been resolved, it is accessible, then and only then is it accessible”* (Interview 13). The general attitude of respondents is that there should not be any distinction between the spatial experiences of people, with or without disabilities. More precisely, if accessibility has been included to an adequate degree, users with disabilities should have the same spatial experiences as other users: *“(…) we will always try to integrate it [accessibility], fully in order for everybody to make use of the space without having to experience that parts of the space were specifically created for certain people. This is an egalitarian quality, in our view, but it is difficult because it is always a delicate balance to strike,”* (Interview 9). The exception to this is when respondents refer to projects in which accessibility was a key design theme, with such projects being specifically designed for the rehabilitation of users with cognitive or physical disabilities, for instance. Only a few respondents with specific expertise or interest in disability problematise this, expressing that disabilities fundamentally alter a person’s sensual and spatial experiences. The above quote frames one of the primary recurring issues expressed by respondents: the ideal of designing spaces that are as integrated as possible is partly problematised under BR18 because it places specific demands on behalf of some user groups while overlooking others. Respondents have widely varying opinions of this and seem to have difficulty adequately articulating their opinions on the subject, especially if accessibility or disability is not their field of expertise.

It can be succinctly drawn from the interviews that all landscape architectural firms approach accessibility as a matter of programming. More precisely, in most interviews, accessibility is approached as a matter of either A) the programming of space with a specific user group with disabilities in mind, or B) the programming of space for all users to have equivalent spatial experiences. On the other hand, some respondents point out that the programming of space and spatial experiences is a problem in its own right, as it can deprive some projects of their *genius loci* (atmosphere of a space), effectively undermining the landscape architectural qualities of the project. In this respect, several respondents refer to Norwegian nature and Norwegian academic experts on accessibility in landscape architecture, claiming that the more widely varied Norwegian countryside demands a different, less programmed approach to accessibility and the user experience in general. In other words, these respondents are concerned that an overly programmatic handling of accessibility in landscape architecture can ultimately disrupt the spatial experiences which were meant to be made accessible in the first place.

3.3 Accessibility and aesthetics

Through the interviews it became clear that many of the respondents questioned the underlying logic of the BR18 accessibility requirements. Central to this frustration were the aesthetic and spatial challenges posed by accessibility requirements in various projects. Specifically, it was repeatedly mentioned that the resources and square metres used for accessibility solutions were simply disproportionate to the number of users. This was deemed especially true of projects in which the client did not want to spend additional resources on developing integrated, seamless

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4 accessibility design which conformed to the aesthetics and programme of the space. In line with
5 this, many of the interviewed landscape architects expressed that they sometimes experienced a
6 clash between the accessibility and aesthetic expression of projects. Conversely, some of the most
7 experienced of our respondents said it had become second nature to them to incorporate
8 accessibility into a project's design at the beginning of the project to avoid the aforementioned
9 clash between aesthetics and accessibility: "(...) *I know there will be demands and, as such, it is*
10 *something I include in the design from the outset to a much greater extent than when I was*
11 *younger,*" (Interview 6).
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15 In many ways, the frustration expressed by our respondents in relation to aesthetics and
16 accessibility can be summarised as a matter of 'making aesthetically pleasing accessibility
17 solutions take up less space': "*We have to adhere to the requirements, but there are a lot of choices*
18 *in the process, a lot of selection and rejection, especially when in terms of aesthetics,*" (Interview
19 1). However, the respondents with more accessibility experience also expressed a frustration that
20 this issue was representative of the role of accessibility in many projects. These respondents
21 expressed a complex understanding of accessibility as a field that lacks aesthetic refinement and
22 case examples. In conjunction with the insufficient prioritisation of many clients, this put
23 landscape architects, especially those with less experience in accessibility, in situations where they
24 were forced to choose between aesthetics and accessibility – the very frustration that was most
25 commonly expressed in our interviews.
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30 **3.4 Knowledge and education**

31 It was generally agreed that accessibility, and disability in general, had come to fill a significant
32 proportion of landscape architectural work over the past decade in the form of changes to building
33 regulations, but the study programmes have not seemed to have kept up with this change to a
34 satisfactory extent. Three of the interviewed landscape architects had been trained as accessibility
35 auditors and most firms without in-house accessibility auditors had external auditors whom they
36 contacted when this was deemed necessary. Nearly all respondents believed that they benefited
37 significantly from contact with accessibility auditors, with many expressing a desire to have in-
38 house accessibility auditors. However, relying on a few highly specialised experts, as in the case
39 with Danish accessibility auditors, is not without its problems, as one experienced stated: "*There*
40 *should be no such thing as an accessibility auditor. All of us should be accessibility auditors. It is*
41 *just so important. It's a little annoying that one has to be a specialist in something this obvious,*"
42 (Interview 13). In continuation of this point of view, some of the more experienced landscape
43 architects stressed that they see a challenge with recent graduates not having the required
44 knowledge about accessibility: "*I hire young landscape architects with a fancy university degree*
45 *(...) who have completed their studies without learning anything about accessibility,*" (Interview
46 13).
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51 The state of the accessibility knowledge possessed by landscape architects was also an issue for
52 other respondents. One respondent with significantly less experience than Respondent 13 asked
53 us what was currently 'new and hot' within the area of accessibility (Interview 5). While asking
54 half in jest, this respondent, along with many others, expressed a general desire for some way to
55 easily stay up to date on new developments and best-case examples in the field of accessibility
56 design.
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3.5 Evaluation

When asked if and how firms evaluated their projects after they had been put to use (post-occupancy evaluation), including accessibility solutions, only one respondent said they actively revisited sites during working hours, while a few stated that they revisit sites in their leisure time. Most respondents stated that once a project is handed over to a client, they do not revisit or evaluate the project except for the mandatory one-year review, which focuses exclusively on the technical quality and maintenance of the delivered project. However, several respondents did express that they would prefer to have the time for proper post-occupancy evaluations as it would be valuable for them to learn from their successes and mistakes. Conversely, some respondents did not see the point in doing so, stating they were convinced that the client would tell them if anything was wrong with the project.

3.6 Interpreting 'accessibility' as a concept

Most respondents linked the concept of accessibility to the requirement of level-free access and tactile markers for people with visual impairments, with an explicit or implicit reference to BR18. Some respondents reflected on this, pointing out that these two elements had become dominant in most discussions of accessibility. A few respondents mentioned a lack of focus on cognitive disabilities or allergies, for example, as they pointed out that for many in the profession accessibility begins and ends with the requirements in BR18. In general, a particular professional concept or theoretical knowledge relating to accessibility was not expressed. However, four respondents briefly mentioned 'universal design' with one respondent mentioning 'accessibility for all', and one talking about 'the freedom to move', both of which are linked to the universal design concept. One respondent put it: *"The way I think we work with accessibility and the way I perceive it are more akin to universal design than accessibility. (...) It is not just about people with disabilities but also children, temporary health conditions, people with prams (...). So, it's about how we include and create the best possible community for everyone,"* (Interview 12).

With the exception of the above quote, even those who expressed a broader than average understanding of accessibility were only involved with accessibility to varying degrees. Many had only recently been introduced to a broader conceptualisation of accessibility via particular clients and projects. The prevalent specific and regulation-bound understanding of accessibility was remarked on near the end of many interviews, as respondents generally started to reflect on accessibility as part of their design processes, i.e. as more than just ramps and guidelines. Other respondents were well aware that they sometimes designed according to a specific or regulatory interpretation of accessibility but referred to their role as consultants for clients who did not want to use any more resources than required by BR18.

3.7 Sustainability

The vast majority of times sustainability was brought up, the interviewed landscape architects focused on environmental or 'green' aspects of their profession, mentioning things such as stormwater management, recycling, biodiversity, and urban greening. When questioned, some respondents did agree with accessibility being part of the social sustainability connected to the landscape architecture profession. However, only a few mentioned this as being an active part of the firm's approach to sustainability or mentioned it on their own initiative. Some respondents stated that they are actively involved with the Danish adaptation of the *Deutsche Gesellschaft für Nachhaltiges Bauen* (DGNB) certification system under which social quality (including

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4 accessibility) is one of the three key parameters for sustainable construction (Green Building
5 Council Denmark, 2014). Despite this, there was a general doubt about accessibility as part of the
6 DGNB certification: *“It is not particularly clear that it is something to be taken seriously in most
7 design programmes. It is something they expect you to know. So, it is not like the sustainability
8 requirements which top the agenda. One could say that this includes accessibility, but I don’t think
9 this can be said to receive any attention,”* (Interview 1).
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13 Similarly, out of those who were aware of the UN SDGs, only a few knew about LNOB. Some
14 respondents explicitly mentioned that they had experienced the SDGs and DGNB certifications,
15 even sustainability in general, as political and branding tools, rather than an ethical or political
16 approach for the landscape architectural profession. When asked whether they knew about the
17 accessibility policy agreed on and signed in 2011 by the Association of Danish Landscape
18 Architects (DL) and other bodies, only one said yes. However, most respondents stated that the
19 fundamental emphasis for their daily professional work as landscape architects is creating good
20 public green spaces for people. Thus, even if they had not thought of accessibility as part of the
21 profession’s social sustainability and societal responsibility, it does not mean that they do not
22 consider themselves socially responsible: *“The focus is very much on environmental aspects,
23 vegetation, biodiversity and nature. Obviously, you want everyone to have access to nature and to
24 the experiences this affords. Accessibility is not something that takes up a lot of space in the debate
25 at the office.”* (Interview 11).
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30 Finally, the financial sustainability of accessibility in projects was mentioned in some interviews.
31 One thing that was repeatedly mentioned was the cost of building houses without a plinth to
32 provide level-free access, primarily due to the high cost of safeguarding such buildings against
33 water damage. This was used to exemplify how easy it would be to shift millions in construction
34 costs if accessibility could be integrated in a smarter, more financially sustainable way than
35 lowering the entire building. Such arguments were based on a frustration that if even a little
36 research and technical knowledge were applied to accessibility, these issues could be resolved in
37 a much more financially viable way in many projects. Indeed, it was argued that this would free
38 up significant resources for providing more accessible urban spaces.
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42 **4. Discussion**

43 From the results of this study’s empirical inquiry, it should be clear that several political,
44 professional, and regulatory factors play a role in the efforts of Danish landscape architects to
45 design and understand accessibility. Embedded in such a complex setting, accessibility in Danish
46 landscape architectural firms’ work should not simply be equated to the degree of focus individual
47 firms happen to ascribe to accessibility. Indeed, as an increasingly important aspect of Danish
48 landscape architecture, accessibility exemplifies the interdependence between societal and spatial
49 contexts in architecture (Till, 2013). For this study it therefore becomes important to include the
50 BR18 provisions, the implementation of national and international politics in practice, and the
51 professional perceptions of accessibility among landscape architects, as all these factors shape the
52 context and work of the profession.
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56 **4.1 The political landscape**

57 In recent years, significant focus has been brought to bear on environmental and economic
58 sustainability in the landscape architecture profession. ‘Green’ issues are now significantly
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4 commonplace in Danish municipalities, the public, and therefore the landscape architectural firms
5 which design public spaces (Blok and Meilvang, 2014, Laage-Thomsen and Blok, 2020, Tubridy,
6 2020). As is evident from the interviews, this means that topics such as stormwater drainage and
7 biodiversity are now automatically included in firms' design processes, whereas social
8 sustainability and accessibility do not enjoy the same enhanced focus. A similar development
9 appears to be happening in other countries (Ceylan and Soygeniş, 2019).
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13 Despite this, when specifically asked, all the landscape architectural firms in the current study
14 agreed that landscape architecture has a social responsibility for designing quality outdoor spaces.
15 As described in the introduction, Denmark has drawn up multiple national policies and entered
16 into international obligations concerning accessibility. In other words, it is obvious that, unlike the
17 environmental sustainability agenda, accessibility has not had the same impact among
18 municipalities and practitioners as part of the social sustainability emphasised in national policies.
19 Instead of becoming a key professional theme for landscape architectural firms, as the national
20 Danish architecture policy of 2014 suggests, BR18 has made accessibility a technical matter
21 largely considered outside the scope of the landscape architecture profession. Adding to, or
22 perhaps causing, this lack of professional focus are the varying interpretations of accessibility
23 experienced by landscape architects across the municipalities. This means that accessibility – as a
24 part of landscape architectural design processes – inhabits whatever practice is allocated in
25 negotiations between municipalities' varying interpretations of BR18 and the individual client's
26 wish to allocate specific resources to accessibility solutions. In such negotiations, most landscape
27 architects do not possess sufficient knowledge of accessibility to adequately pressure clients or
28 municipalities to alter their focus on accessibility. This leads to significant discrepancies between
29 national and international policies on accessibility and the municipal and professional
30 implementation of such policies. In practice, this means ambitions about accessibility become a
31 matter of checklists and requirement specifications, which in turn impede creative, fully
32 integrated, and ultimately 'good' accessibility solutions.
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38 **4.2 Conceptualising accessibility**

39 Throughout the study we have used the concept of 'accessibility', as it is a common word used in
40 everyday speech and landscape architectural work in Denmark, and it is a word that is not loaded
41 with specific (theoretical) meaning. However, some respondents mentioned other concepts such
42 as 'universal design', 'design for all' and the idea of 'the freedom to move'. In international and
43 particularly national policies there are many such concepts describing accessibility, often used
44 interchangeably, with little conceptual clarification. In mirroring the vocabulary of such policies,
45 the respondents who exhibited a more thematic knowledge of accessibility employed the same
46 variety of concepts. However, most of our respondents viewed accessibility as synonymous with
47 the technical requirements and specifications in BR18, rather than a clearly defined concept
48 describing one aspect of contemporary landscape architecture. This calls for a general discussion
49 in the field of landscape architecture of how to conceptualise accessibility and the meanings this
50 conceptualisation would imply for what firms aim to achieve when claiming to design more
51 accessible spaces.
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56 **4.3 Accessibility, knowledge and education**

57 The lack of knowledge when negotiating with clients and officials, as also remarked on by many
58 of the interviewed landscape architects, suggests insufficient training and knowledge of
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4 accessibility and users with disabilities. When the landscape architects in this study, in
5 commenting on users' spatial experiences, express a desire to keep all user groups equal in design
6 processes, this could be described as an ethical perspective of humans being fundamentally equal.
7 While this might appear admirable, critics have argued that such 'normate' architectural thought
8 is in fact a dismissal of the complexity of disability and the widespread differences of bodily
9 capabilities, even across able-bodied individuals (Hamraie, 2013). In some cases, this will result
10 in exclusion because landscape architects lack knowledge of the social and physical barriers
11 encountered by people with disabilities in their everyday lives (Zhang *et al.*, 2017).
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15 As is evident from this study's interviews, the 'normate' understanding possessed by landscape
16 architects at graduation is sometimes challenged as they advance in their careers and gain more
17 experience. However, this is problematic because A) far from all landscape architects will work
18 with, clients who demand they become more knowledgeable about accessibility solutions; and B)
19 it points to a significant shortcoming of landscape architecture study programmes in Denmark, as
20 new professionals are insufficiently trained to deal with issues of social sustainability and
21 accessibility. Moreover, when reflecting on their own practice, many landscape architects perceive
22 a need for landscape architectural research to provide them with the framework for more practical
23 and aesthetically pleasing accessibility solutions. While this ability to identify and criticise
24 shortcomings should be considered a sign of professional reflectiveness (Schön, 1991), it could
25 indicate that the profession cannot solve these issues without help from academic research
26 integrated in practice, as indicated by how BR18 is operationalised in practice (Figure 1).
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31 Simultaneously, the interviewed firms are also calling for more knowledge-sharing in terms of
32 accessibility seminars and workshops, and best-case examples of accessibility. In Denmark, an
33 online platform actually provides this: the website www.rumsans.dk, hosted by BUILD, Aalborg
34 University (Rumsans, 2021). Aalborg University also offers a master's degree programme in
35 'Inclusive Architecture' (previously 'Universal Design'). Knowledge of this platform does not
36 seem to have reached firms, or perhaps they are familiar with the platform but find it lacking and
37 thus fail to mention it. In either case, this emphasises what can only be described as a lack of
38 communicative success by academia in disseminating to practitioners.
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42 **4.4 The regulations and programming of accessible spaces**

43 Returning to the diagram at the start of the results section, it is interesting that no firm occupies
44 the quadrant in which current building regulations are closely adhered to and spatial experiences
45 are loosely programmed. In other words, it appears that current regulations are a hindrance to
46 designing accessibility in a way that allows users with disabilities to encounter a varied spatial
47 experience not carefully outlined in landscape architectural programming. In general, this is an
48 issue because other research has emphasised that limiting access to public green spaces for users
49 with disabilities through strict programming counteracts the exact spatial experience sought out
50 when entering nature (Corazon *et al.*, 2019). For the purposes of this study, the explicit demands
51 of building regulations can be said to impede the design processes of landscape architects, as
52 significant experience and specific expertise are required to challenge regulations. This means that
53 most landscape architectural firms who quite understandably adhere to the legal requirements of
54 existing regulations will in effect be designing minimum standard solutions, something that was
55 explicitly complained about in some interviews.
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4 While the interviewed landscape architects unanimously agree with the intentions of accessibility
5 requirements in BR18, this leads to a distinct dissatisfaction with the wording and daily
6 functioning of the regulations. In other words, most of the criticism of accessibility requirements
7 is not linked to BR18's general focus on accessibility, but on the fact that there is no room for the
8 landscape architects to draw on their own technical expertise when assessing what is needed to
9 ensure accessible spaces. Without proper training, only years of expertise make it possible to
10 develop the sought after aesthetically pleasing and fully integrated accessibility solutions.
11 However, given the current state of accessibility training, BR18 does ensure some measure of
12 accessibility in all new projects. This effectively leaves practitioners in a situation where
13 dissatisfaction with BR18 is coupled to the knowledge that diminishing current regulations could
14 lead to compromising accessibility and thus the profession's social responsibility.
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19 **4.5 Limitations**

20 This study makes it clear that accessibility evokes many associations. While such associations and
21 experiences are exactly what the study had set out to explore, it is entirely possible that choosing
22 a less recognisable term for the same theme could have spurred entirely different answers.
23 Moreover, it is important not to confuse 'saturation' with 'representation' in this study. If one
24 wishes to explore the prevalence of various opinions and experiences described in this study, one
25 will have to employ different methods. Finally, it would be amiss to not mention that while the
26 study interviews one fifth of all members of the Danish Association of Architectural Firms
27 involved in landscape architecture, not all landscape architectural firms are members of this
28 organisation. It is possible that there are some experiences in work practices and perceptions of
29 accessibility that are common to non-member firms which have not come to light through this
30 study.
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35 Finally, it is worth mentioning that several important factors outside the scope of this study
36 influence the accessibility of landscape architectural work. As expressed in a few interviews,
37 landscape architecture is not solely responsible for the accessibility of public green spaces, as a
38 host of contextual factors (i.e. the design of assistive devices and public transport) significantly
39 influences users' ability to even get to the spaces designed by landscape architects.
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43 **5. Conclusion**

44 The study found that designing quality public outdoor spaces was the primary task of firms and
45 that accessibility was perceived as part of this task. However, accessibility is just one of many
46 complex issues encountered by architectural firms in their daily work if they are to uphold the
47 profession's social and environmental responsibilities. This study has shed light on the many
48 different matters that Danish practising landscape architects associate with their work involving
49 accessible spaces. In this context, the role of current Danish building regulations and programming
50 accessibility came to represent two central themes, along with the current inadequacies in Danish
51 study programmes and research in terms of accessibility. This leads landscape architects to
52 consider accessibility requirements as a technical issue. With this approach to accessibility, it is
53 afforded significantly less interest compared to matters such as biodiversity and stormwater
54 management that are now regarded as integral to landscape architectural tasks. In order for
55 accessibility to get the same traction as part of the profession's social responsibility, research and
56 education are needed to instil what is currently considered expert knowledge in graduate landscape
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architects. Importantly, these findings emphasize the need for similar studies to be conducted in other countries with different educational, legal, and professional contexts.

This study has shown that experienced landscape architects representing firms of all sizes throughout Denmark have a complex understanding of accessibility and integrate it into the daily task of counselling those who commission and construct outdoor spaces. It is clear that a certain level of frustration is prevalent among some landscape architectural firms, as accessibility takes up a significant amount of space in projects. At the same time, however, it is not allocated sufficient resources or regulatory leeway to be carried out satisfactorily. To some, this is an issue of professional quality as spaces can end up being less aesthetically pleasing or programmed in an unsatisfactory way. To others, this is an issue of professional responsibility as they do not believe they have the requisite knowledge of accessible design solutions. This study concludes that accessibility has come to take up a significant amount of time in the work of practising Danish landscape architectural firms. A fact which has made landscape architects, both those who specialise in accessibility and those who do not, call for better solutions and more thoroughly trained graduates.

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15 [1] A design feature that is added to the design late in the process and, thus, does not necessarily conform
16 to the desired aesthetic expression of the design.
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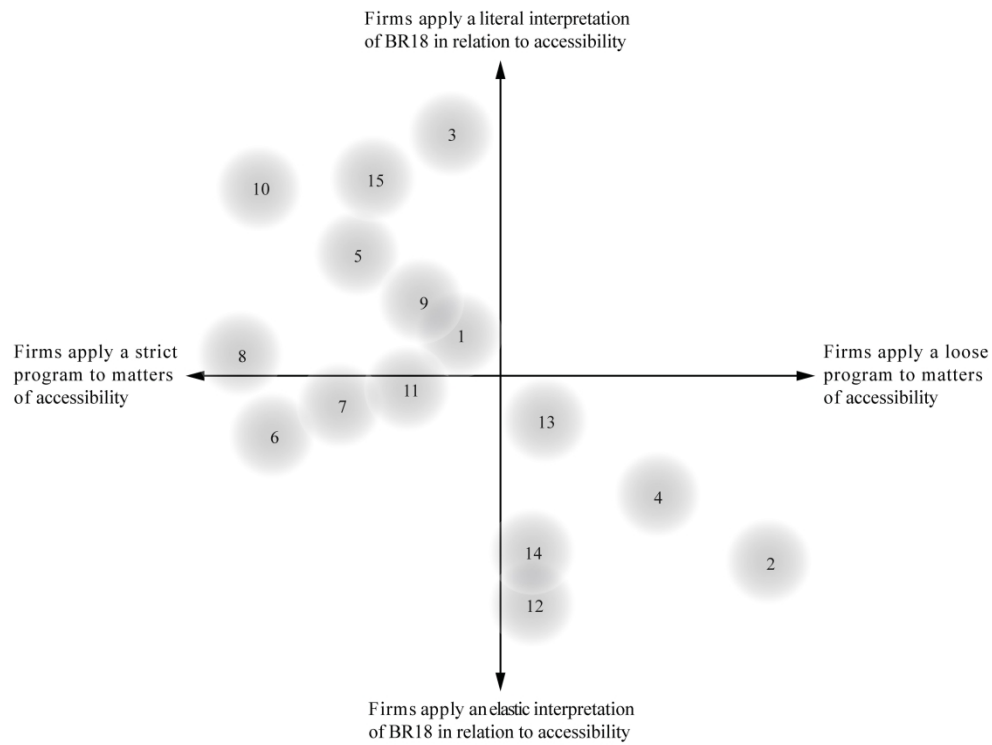


Figure 1: Based on the interviews, the 15 landscape architectural firms were placed in the diagram according to whether they apply a literal or elastic interpretation of BR18 and whether they apply a strict or loose programme to matters of accessibility.

296x288mm (300 x 300 DPI)

	Company size	Gender	Years of experience	Years in the company	Education in accessibility
1	Micro/small company	Female	15	12	
2	Micro/small company	Female	18/3	9/3	
3	Micro/small company	Female	15	10	
4	Micro/small company	Female	26	20	
5	Micro/small company	Male	9	7	
6	Micro/small company	Male	18	12	
7	Micro/small company	Male	17	15	
8	Micro/small company	Male	25	7	Accessibility auditor
9	Micro/small company	Male	29	10	
10	Medium-sized/big company	Female	13	6	
11	Medium-sized/big company	Female	19	10	Accessibility auditor
12	Medium-sized/big company	Female	18	3	Accessibility auditor
13	Medium-sized/big company	Male	29	27	
14	Medium-sized/big company	Male	15-20	15	
15	Medium-sized/big company	Male	21	5	