

Strategic Infrastructure Accessibility Plan Guidance

Introduction

EPSRC have developed this document to aid applicants to the Strategic Infrastructure opportunity in developing their Accessibility Plans, as required within their Approach, and to increase understanding within the research community about accessibility for research infrastructures. This document is intended to serve as guidance for applicants, covering many accessibility and Equality, Diversity, and Inclusion (EDI) considerations and principles. This document has been developed with the help of members of the EPSRC funded [EDI Hub+](#).

Core Principles

Lack of diversity in research staff and users can lead to serious flaws in prioritisation, design, sampling, analysis and interpretation, etc. (Glasziou 2018; Macleod 2014; JLA 2023). Research that is informed by diverse multidisciplinary teams is better able to ensure practicality, utility, and impact (Deane 2014 and 2019, Schroeder 2022). Research projects and infrastructures may be significantly inhibited if they do not engage with, and are not undertaken by, a diverse range of research and innovators with a breadth of experience.

Strategic Infrastructure applicants are recommended to view the need for accommodations from social (Oliver 1990, Scope n.d.) and Human Rights based models of disability (Rice 2021) and implement the [seven principles of Universal Design](#) (National Disability Authority 2012). Accommodations for disabled researchers and innovators obviously require consideration of the accessibility of physical spaces and the equipment located within it. However, it also requires consideration of the design of the work processes, staff knowledge, and attitudes. The [Access All Areas in Labs guidelines](#) are helpful in describing how these might be implemented in practice (AAALabs 2023). It is insufficient to state that the infrastructure is “accessible” and that anyone needing accommodations should “just

apply”; the applicants should provide detailed information on the efforts made to ensure access to all areas is considered, and the process to follow if users have any additional needs.

Comprehensive and intersectional view of EDI impact

Applicants should consider the impact of their research infrastructure from the perspectives of disability, neurodiversity, gender, race and ethnicity, socioeconomic status, and career stage. Disability accommodations need to encompass physical, sensory, mental health, and neurodiversity challenges and should be made pre-emptively (Equality Act 2010).

Consideration should be made to the needs of the staff running and maintaining the infrastructure, visitors using it, and (where possible) public access e.g. for open days. Applicants should make it explicit that they welcome a diversity of people to their infrastructure. They should ask about access needs prominently but keep disclosures confidential. They should provide detailed information about access accommodations. Any web pages associated with the infrastructure should meet [W3C access standards](#) (WAI 2019) and use inclusive language and show diversity in the images selected. Consideration should be made to the diversity of any case studies provided.

Application process to use infrastructures

Consideration should be made as to how people will be allocated access to the infrastructure. The application process should be clearly described, with clear criteria for prioritisation. Consideration should be given to whether the infrastructure can prioritise access for specific groups e.g. early career researchers, researcher from the host institution, or under-represented groups e.g. disabled researchers.

The application forms should be kept as simple as possible and checked for accessibility. Microsoft word has a built-in accessibility checker and there is [guidance](#) available online for creating accessible documents. Some considerations include:

- Font size 12-14

- Use sans serif fonts, such as Arial, Calibri or Comic Sans, as letters can appear less crowded
- 1.5 Line Spacing
- Avoid underlining and italics
- Use a font size 20% larger for headings
- Use bold for emphasis
- Use single colour backgrounds
- Avoid abbreviations where possible; always provide the expanded form when first used

Infrastructures should ensure a simple, transparent, and accessible process for users who are applying for and using their equipment.

Deadlines for applying for access should be advertised well in advance and not fall immediately after major national holidays.

Physical access

Infrastructures access remotely

Visitor access: If an infrastructure is mostly accessed remotely this does remove many access barriers. However, the team must consider how accessible the process for applying for access to the infrastructure could be made, and how accessible the interface is.

The accessibility of the web page on which the infrastructure's capabilities are described, and the application form is held should be to [W3C access standards](#) (WAI 2019).

Web pages should [prioritise visual access](#) as [many requests for improved accessibility are visual](#).

Other considerations may include:

- Ideally text size and contrast should be changeable

- Create good ALT text (text that describes images)
- Videos should have closed caption options. Consideration should be given to sign language interpretation and audio description of videos
- Don't place important content out of the way where screen readers won't find it
- Check mobile and screen reader accessibility separately
- Don't disable zoom in mobile interfaces. (Mortensen 2023)

Staff access: Whilst some infrastructures would be mostly accessed remotely, technicians would need to access and maintain the physical infrastructure. Consideration is required for their access needs exactly the same as if the infrastructure was accessed in person by all users – see below for detailed considerations and recommendations.

Infrastructures accessed in person

Infrastructures should aspire to be accessible to all. However, it is recognised that this may not always be possible. In these cases, the infrastructure should provide alternate ways of accessing the resources e.g. by providing technical support in order to process samples.

- All access solutions should be considered with regard to their impact on the work of the whole team.
- There is the potential for clashes between ergonomic needs and/or access needs. Perfect solutions for one access need may create barriers for another.
- Consultations should take place to ensure the removal of all absolute access barriers and the identification of acceptable compromises.

Infrastructures should provide detailed access information regarding access on their web page. Photos and videos are encouraged.

Consideration should be made of the researcher's whole journey. For example, information should be provided of travel routes to the infrastructure including

information about accessible travel (particularly taxis). Information about accommodation should highlight their proximity to the infrastructure, their usual costs and wheelchair accessibility. Step free routes from the front door of the building to the infrastructure should be mapped, (pictures and videos are helpful). These maps should highlight accessible parking bays, powered doors, lifts, accessible toilets, quiet rooms, break facilities, and breastfeeding facilities. Ideally there should be at least one accessible toilet in the same building as any infrastructure.

Safety issues should be designed “out” of the labs; either in the structural or equipment design or in the protocols used. For example, fire alarms should ideally have auditory and visual alarms. Particular consideration should be given to Personal Emergency Evacuation Plans (PEEPs) and Lone Working Plans for [people with significant mobility, visual, and hearing impairments](#). However, consideration should also be made for anyone who may become disorientated or struggle with navigation when under stressful and loud conditions e.g. neurodiversity.

Access for people with poor mobility or dexterity should be considered:

- Door handles and locks should allow easy grip and have good colour contrast
- All taps should be levering type
- While regarding fire door safety, all doors should be as light as possible
- Wheelchair users need space. Always provide generous turning circles and consider the location of equipment on a bench etc, as tight spaces mean damage e.g., to doorways and wheelchairs. Electric wheelchairs in particular have the capacity to damage equipment by knocking into it.
- Consideration should be given to the robustness and positioning of the equipment in the laboratory where reasonable. Consider the location of control panels, are they visible and reachable from a sitting position?
- Equipment controls and monitoring should be able to be linked to other access equipment e.g., voice activated controls
- Use of open standards is highly preferred where these exist, in their absence any protocol for interfacing with equipment should be well documented and not rely on proprietary hardware or software

- Flat screens should have adjustable lighting levels, good colour contrast, good choice of colour
- Text should be large and ideally adjustable in terms of size and contrast with background.

Good sensory access should be considered:

- Good colour contrast, matt surfaces, and good lighting
- Signs and alarms should have two modes e.g., audible and visual fire alarms, visual and tactile signs
- Consideration should be taken to create a good auditory environment with sound baffles, hearing technology etc. Some examples of this can be found on the [Royal National Institute for Deaf People website](#).
- Care should be taken that the equipment runs as silently as is possible. For example, noise of fans can be either distracting or reduce ease of spoken communication
- Particular care should be taken to the choice of colours and colour blindness. Some accessibility tips can be found on the [University of Reading's Digital Accessibility blog](#).

Assistance dogs are increasingly being used not just for navigation but also to alert for health conditions e.g., epilepsy, low blood sugar. Therefore, consideration should be given to facilitating their access (AAAILabs 2023 – Protocol Access).

There should be an accessible toilet in the same building as the planned infrastructure. The toilet should be large enough to accommodate carers. Ideally accessible toilets should be provided that are as large as possible on every floor. Consider providing a Changing Place accessible toilet in the building's foyer. If facilities require people to change clothes (e.g. clean room labs), provision of a hoist should be considered.

Training

It is essential that staff running the infrastructure should be trained in EDI issues. This ensures the infrastructure's staff are respectful and knowledgeable about the needs of users of all diversities. Minimum behaviour standards for everyone using the infrastructure should be shared with online training being available for challenging issues e.g. allyship, bystander interventions, the prevention of bullying, harassment and discrimination.

Diversity monitoring and responsiveness

There should be diversity monitoring of staff supporting the infrastructure, of those applying, and of those successful in using the infrastructure. This needs to be comprehensive in order to provide sufficiently detailed data to spot patterns of bias e.g. using DAISY (2022) guidance for recording demographics. Anonymised surveys of user's and staff's experiences of using the infrastructure are useful in order to identify further area for improvement. Clear lines of accountability should be built into the governance of the infrastructure. It should be clear how to ask for accommodations, make complaints, or raise concerns. The web site should include feedback on how the infrastructure has responded to previous issues.

Outreach and public engagement

Applicants should provide information on how they would ensure the widest possible range of people (and particularly those from under-represented groups in research) are aware of the infrastructure and its capacities. If events are planned, then the [Access All Areas in Labs](#) team would help ensure the accessibility of such events (AAALabs 2023).

Public outreach is encouraged to widen the userbase and ensure value for money, and because good quality lay consultation can lead to relevant and impactful research (Deane 2019).

Acknowledgements

We would like to take this opportunity to thank Dr Katherine Deane, Associate and Access ambassador, from the university of East Anglia, for her advice guidance and input into the construction of this guidance document, enabling us to provide guidance for future applicants to the EPSRC Strategic Infrastructure funding opportunities.

References

- [AAAILabs. 2023. Access All Areas in Labs.](#)
- [DAISY 2022.](#) Diversity and Inclusion Survey (DAISY) question guidance – Working draft (V2). Equality, Diversity, and Inclusion in Science and Health Group (EDIS).
- [Deane K et al. 2014. Priority setting partnership to identify the top 10 research priorities for the management of Parkinson’s disease. BMJ Open. 4;\(12\):e006434.](#)
- [Deane K et al. 2019 Co-creation of patient engagement quality guidance for medicines development: an international multistakeholder initiative. 2019 BMJ Innovations. 13.](#)
- [Equality Act. 2010.](#) The National Archives
- [Glasziou P, Chalmers I. 2018. Research waste is still a scandal—an essay by Paul Glasziou and Iain Chalmers. BMJ. 363:k464](#)
- [JLA. 2023. Making a difference. James Lind Alliance.](#)
- [Macleod MR et al. 2014. Biomedical research: increasing value, reducing waste. Lancet. 11\(383\):101–4](#)
- [Mortensen DH, Spillers F 2023. Principles of Accessibility. Interaction Design Foundation.](#)
- [National Disability Authority. 2012. The 7 Principles of Universal Design. National Disability Authority, Dublin.](#)
- Oliver M. 1990. The Politics of Disablement. Basingstoke: Macmillan.
- [Rice 2021 The Human Rights Model of Disability. National Institutes of Health, Office of Equity, Diversity and Inclusion.](#)

- [Schroeder K et al. 2022. Building from Patient Experiences to Deliver Patient-Focused Healthcare Systems in Collaboration with Patients: A Call to Action.](#)
- [Scope n.d. Social Model of Disability](#)
- [WAI 2019 Web accessibility standards.](#) Web Access Initiative. World Wide Web Consortium (W3C)