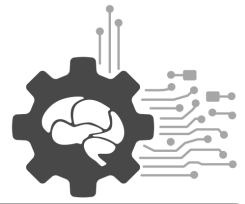


# AccessERC Equal Access: Universal Design of Your Engineering Research Center (ERC)



A checklist for making ERCs welcoming, accessible, and usable  
by Sheryl Burgstahler, Ph.D.

Engineering Research Centers (ERC) of the National Science Foundation (NSF) integrate engineering research and education with technological innovation to transform national prosperity, health, and security. As increasing numbers of people with disabilities participate in academic opportunities and careers, the accessibility of courses, labs, electronic resources, events, internships, and other ERC activities and resources increases in importance. The goal is simply equal access; everyone who qualifies to use ERC resources or participate in sponsored activities should be able to do so comfortably and efficiently.

## Legal Issues

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 and its Amendments of 2008 mandate that no otherwise qualified person with a disability shall, solely by reason of his or her disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in public programs.

## Universal Design

An approach to making facilities, information, and activities accessible to and usable by everyone is called universal design (UD). Universal design means that rather than designing for the average user, you design for people with differing native languages, genders, racial and ethnic backgrounds, abilities, and disabilities. The universal design of ERC offerings will make everyone feel welcome and minimize the need for special accommodations for individual participants.

## Guidelines and Examples

Take steps to create an inclusive climate in all ERC undertakings. Addressing the following questions provides a good starting point for making your ERC facilities, information resources, and activities welcoming to, accessible to, and usable by everyone. This content does not provide legal advice. Contact the U.S. Department of Education's Office for Civil Rights (OCR) about legal mandates with respect to people with disabilities.

## Planning, Policies, Recruitment, and Evaluation

Consider diversity issues as you plan and evaluate ERC services.

- Are people with disabilities, racial and ethnic minorities, men and women, young and old students, and other groups represented in planning processes, internship positions, and recruitment in numbers proportional to those of the whole campus or community?
- Do ERC policies and procedures ensure access to facilities, events, and information resources for people with disabilities?
- Are disability-related access issues and other diversity issues addressed in ERC data collection, evaluation plans, and instruments?
- Do you address issues related to the inclusion of participants with disabilities in grant proposals, perhaps by partnering with an organization with expertise in this area?

## Information Resources and Technology

Ensure that computers, websites, videos, curriculum, and other resources are accessibly designed and systems are in place to make accommodations when requested. For guidance, consult the University of Washington IT Accessibility website at [www.uw.edu/accessibility](http://www.uw.edu/accessibility).

- Do pictures in your publications and website include people with diverse characteristics with respect to race, gender, age, and disability?
- In key publications, do you include a statement about your commitment to access and procedures for requesting disability-related accommodations? For example, you could include the following statement: "Our goal is to make materials and activities accessible to all participants. Please inform organization leaders of accessibility barriers you encounter and request accommodations that will make our activities and resources accessible to you."
- Are all printed publications available (immediately or in a timely manner) in alternate formats such as braille, large print, and accessibly designed electronic text?
- Are key documents provided in language(s) other than English?



- Are printed materials in your facility or at an event within easy reach from a variety of heights and without furniture blocking access?
- Do electronic resources, including web pages, adhere to accessibility standards adopted by your institution, or your project or funding source (e.g., the Web Content Accessibility Guidelines 2.0 at [www.w3.org/WAI/intro/wcag](http://www.w3.org/WAI/intro/wcag))? For example, are text alternatives provided for graphic images on web pages? Can the content be accessed by using the keyboard alone?
- Do you include a statement on your website affirming your commitment to accessible design? For example, you could include the following statement: “We strive to make our website accessible to everyone. We provide text descriptions of images and video clips are captioned and audio-described. Suggestions for increasing the accessibility of these pages are welcome.”
- Do videos developed or used in the ERC have captions? Are they audio-described? Learn more at [www.uw.edu/doit/creating-video-and-multimedia-products-are-accessible-people-sensory-impairments](http://www.uw.edu/doit/creating-video-and-multimedia-products-are-accessible-people-sensory-impairments).
- Is an adjustable-height table available for each type of workstation to assist participants who use wheelchairs or are small or large in stature?
- Do you provide adequate work space for both left- and right-handed users?
- Is software to enlarge screen images and a large monitor available to assist people with low vision and learning disabilities?
- Do you provide a trackball to be used by someone who has difficulty controlling a mouse?
- Are staff members aware of accessibility options (e.g., enlarged text feature) included in computer operating systems and of assistive technology available in the facility?
- Are procedures in place for a timely response to requests for assistive technology?

For more information, consult accessible technology resources at [www.uw.edu/doit/resources/popular-resource-collections/accessible-technology](http://www.uw.edu/doit/resources/popular-resource-collections/accessible-technology).



### ERC Facilities and Activities

Ensure that facilities, activities, materials, and equipment are physically accessible to and usable by all participants, and accessibility issues are addressed in safety considerations.

- Are there parking areas, pathways, and entrances to the building that are wheelchair accessible and clearly identified?
- Are all levels of the facility connected via an accessible route of travel?
- Are aisles kept wide and clear of obstructions for the safety of users who have mobility or visual impairments?
- Are all spaces welcoming, accessible, comfortable, and safe for people with a variety of abilities, racial and ethnic backgrounds, genders, and ages?
- Is at least part of a service counter at a height accessible from a seated position?
- Is adequate light available?
- Are there ample high-contrast, large-print directional signs to and throughout the facility, that include directions to accessible routes? When appropriate are these signs marked in braille?
- Are wheelchair-accessible and child-friendly restrooms with well-marked signs available in or near the facility?

Consult the *ADA Checklist for Readily Achievable Barrier Removal* at [www.ada.gov/checkweb.htm](http://www.ada.gov/checkweb.htm) for more suggestions. For accessibility guidelines for specific facilities (e.g., engineering labs, makerspaces, computer labs), see the collection of DO-IT resources at [www.uw.edu/doit/programs/accesscollege/stem-lab/resources/make-physical-environments-accessible-students](http://www.uw.edu/doit/programs/accesscollege/stem-lab/resources/make-physical-environments-accessible-students).



## Communication

### Presentations, Exhibits, and Activities

Make sure faculty and staff are prepared to engage with all ERC participants, including those with disabilities.

- Do staff members know how to respond to requests for disability-related accommodations, such as sign language interpreters?
- Are staff and contractors in specific assignment areas (e.g., web page development, video creation) knowledgeable about accessibility requirements and considerations?
- Are staff members aware of issues related to communicating with participants who have disabilities?
- Do staff deliver conference presentations and exhibits that are accessible to all participants?

### Communication Hints

For further suggestions, see the back of this brochure or consult *Equal Access: Universal Design of Your Presentation* at [www.uw.edu/doit/equal-access-universal-design-your-presentation](http://www.uw.edu/doit/equal-access-universal-design-your-presentation).

### Checklist Updates

To increase the usefulness of this working document, send suggested improvements to [sherylb@uw.edu](mailto:sherylb@uw.edu).

### Video

*Engaging Individuals with Disabilities in an Engineering Research Center* may be freely viewed online at [www.uw.edu/doit/videos/index.php?vid=70](http://www.uw.edu/doit/videos/index.php?vid=70). Permission is granted to reproduce DO-IT videos for educational, non-commercial purposes as long as the source is acknowledged.

### Additional Resources

For more information about applications of universal design consult *The Center for Universal Design in Education* at [www.uw.edu/doit/programs/center-universal-design-education/overview](http://www.uw.edu/doit/programs/center-universal-design-education/overview). The book *Universal Design in Higher Education: From Principles to Practice, Second Edition* published by Harvard Education Press, shares perspectives of UD leaders nationwide. Learn more or order online at [www.uw.edu/doit/universal-design-higher-education-principles-practice-1](http://www.uw.edu/doit/universal-design-higher-education-principles-practice-1).

## About AccessERC

*AccessERC* works with ERCs to make their activities and products welcoming to, accessible to, and usable by people with disabilities; and to increase the engagement of individuals with disabilities in ERCs. It is funded by the National Science Foundation as a supplement to the Center of Sensorimotor Neural Engineering at the University of Washington. Learn more at [www.uw.edu/doit/programs/accesserc](http://www.uw.edu/doit/programs/accesserc).

*AccessERC* is led by the DO-IT (Disabilities, Opportunities, Internetworking, and Technology) Center. DO-IT serves to increase the successful participation of individuals with disabilities in challenging academic programs and careers such as those in science, engineering, mathematics, and technology.

For further information, to be placed on the DO-IT mailing list, to request materials in an alternate format, or to make comments or suggestions about DO-IT publications or web pages, contact:

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## Communication Hints

Treat people with disabilities with the same respect and consideration with which you treat others. Here are some helpful hints when it comes to delivering a presentation, hosting an exhibit, and otherwise relating to people with disabilities.

### General

- Ask a person with a disability if that person needs help before providing assistance.
- Talk directly to the person with a disability, not through their companion or interpreter.
- Refer to a person's disability only if it is relevant to the conversation.
- Avoid derogatory slang or negative descriptions of a person's disability. For example, "a person who uses a wheelchair" is more appropriate than "a person confined to a wheelchair." A wheelchair is not confining—it's liberating!
- Provide information in alternate means (e.g., written, spoken, diagrams).
- Do not interact with a person's guide dog or service dog unless you have received permission to do so.
- Do not be afraid to use common terms and phrases, like "see you later" or "let's go for a walk" around people with disabilities.
- Do not touch mobility devices or assistive technology without the owner's consent.
- Do not assume physical contact—like handshakes, high-fives, or hugs—is okay.
- Understand that not everyone uses eye contact.

### Blind or Low Vision

- Be descriptive. Say, "The computer is about three feet to your left," rather than "The computer is over there."
- Speak all of the projected content when presenting and describe the content of charts, graphs, and pictures.
- When guiding people with visual impairments, offer them your arm rather than grabbing or pushing them.

### Learning Disabilities

- Offer directions or instructions both orally and in writing. If asked, read instructions to individuals who have specific learning disabilities.

### Mobility Impairments

- Consider carrying on a long conversation with an individual who has a mobility impairment from a seated position.

### Speech Impairments

- Listen carefully. Repeat what you think you understand and then ask the person with a speech impairment to clarify or repeat the portion that you did not understand.

### Deaf or Hard of Hearing

- Face people with hearing impairments, and avoid covering your mouth, so they can see your lips. Avoid talking while chewing gum or eating.
- Speak clearly at a normal volume. Speak louder only if requested.
- Repeat questions from audience members.
- Use paper and pencil, or type things out on your cell phone, if the person who is deaf does not read lips or if more accurate communication is needed.
- When using an interpreter, speak directly to the person who is deaf; when an interpreter voices what a person who is deaf signs, look at the person who is deaf, not the interpreter.

### Psychiatric Impairments

- Provide information in clear, calm, respectful tones.
- Allow opportunities for addressing specific questions.