NATIONAL POSITION STATEMENT

Engineers' Contributions to Inclusive Design: Creating Universally Accessible Environments

The engineering profession's position

- Engineers understand their responsibility in creating accessible physical environments and promoting inclusivity. By adopting inclusive design principles, they cater to the needs of individuals with disabilities, older adults, and marginalized groups, among others. This results in environments that are beneficial to everyone.
- By recognizing accessibility as a core value, engineers contribute to a society that values diversity and ensures equal opportunities for all. Their commitment to accessibility extends beyond regulatory requirements, as they strive to create environments that eliminate barriers and enhance the overall well-being of individuals.
- Engineers Canada calls upon the federal government to continue prioritizing accessibility by enforcing standards aligned with Universal Design principles[1], promoting elevated accessibility standards, and harmonizing accessibility requirements across provinces and territories.

The challenge(s)

Accessibility in Canada refers to the design of products, devices, services, or environments for people who experience disabilities.[1] The most recent Canadian Survey on Disability indicates that over 6.2 million individuals had a disability in 2017. This represents 22 per cent of Canadians aged 15 and above who face limitations in their daily activities due to disabilities, with higher rates among older adults.[2][3] Given that an estimated one billion people worldwide live with some form of disability, the challenge is significant. Yet, the opportunity is even greater to investigate how engineering can foster inclusivity in the design of products and technologies. As the proportion of older adults rises, so too will the population of individuals with disabilities, underscoring the need for inclusiveness. However, inclusion goes beyond designing for people with disabilities. It also involves understanding human behavior, socialization patterns, lifestyles, and space accessibility, often requiring the involvement of multiple professional skills.

While inclusive design is not yet widely adopted, particularly in building design practice,[4] Canadian jurisdictions have made considerable progress in accessibility through the implementation of legislation, standards, and policies.

[1] Accessibility Services Canada. (2023). Definitions. https://accessibilitycanada.ca/get-help/definitions/

[2] Lau, S-T., Nirmalanathan, K., Khan, M., Gauthier, C., Maisel, J., Novak, A. (2020). A Canadian Roadmap for Accessibility Standards, Canadian Standards Association, Toronto, ON. https://www.csagroup.org/article/research/a-canadian-roadmap-for-accessibility-standards/#heading-3

[3] Employment and Social Development Canada, Disability Inclusion and Accessibility infographic – 2021. https://www.canada.ca/en/employment-social-development/corporate/reports/esdc-transition-binders/inclusion-2021-infographic.html

[4] Zallio, M., & Clarkson, P. J. (2021). Inclusion, diversity, equity and accessibility in the built environment: A study of architectural design practice. Building and Environment, 206, 108352. https://doi.org/10.1016/j.buildenv.2021.108352

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Significant milestones over the past two decades include the Accessibility for Ontarians with Disabilities Act (AODA) in 2005, which led to the development of the Integrated Accessibility Standards Regulations (IASR) in 2011.[5] Additionally, provinces such as Manitoba (2013) and Nova Scotia (2017), New Brunswick (2021) have enacted their own accessibility legislation.[6] Canada's commitment to disability rights was further demonstrated by its signing of the United Nations Convention on the Rights of Persons with Disabilities in 2010. The *Accessible Canada Act* (ACA) which became federal legislation in 2019, is a recent milestone. This act aims to establish a barrier-free Canada by 2040 and applies to the federal government and organizations under its jurisdiction, including federal departments and federally regulated industries.[7] Moreover, cities and communities have taken the initiative by implementing bylaws, policies, and guidelines to address accessibility barriers in various aspects of daily life.

With the increasing number of Canadians living with disabilities, it is crucial to evaluate the current state of accessibility and take steps to address existing gaps. Engineers are instrumental in creating a more inclusive and accessible society that benefits all. By adopting Universal Design principles and considering the diverse needs of individuals with disabilities, engineers can help create inclusive spaces and develop innovative technologies. With a concerted effort to eliminate these barriers, all levels of government can make significant strides towards a more inclusive and accessible society, ultimately improving the well-being and quality of life for all citizens.

Achieving these objectives requires a multidisciplinary approach, with engineers playing a critical role. Key challenges to be addressed include inadequate infrastructure, inaccessible buildings, transportation limitations, and issues in public spaces. Engineers have unique skills and knowledge that can be leveraged to overcome these challenges and ensure accessibility for individuals with disabilities, older adults, and other marginalized groups. As systems thinkers, engineers are trained to think beyond immediate consequences or design applications, to continually re-evaluate and challenge assumptions. This makes them ideally suited to strive for inclusive and accessible solutions.

How Engineers Canada has contributed

Engineers Canada recognizes the significant role the engineering profession plays in creating accessible built environments and promoting inclusivity. Engineers Canada is dedicated to assisting provincial and territorial engineering regulators in guiding engineers to fulfill their responsibility of creating accessible spaces. This commitment includes the active promotion of Universal Design principles, which aim to create environments usable by individuals with a wide range of abilities. Engineers Canada strives to make workplaces welcoming and inclusive, working with regulators to foster diversity within the profession. The expectation of inclusive workplaces consequently sets the standard for inclusive and accessible design.

[5] Government of Ontario. (2021). 2019 Legislative Review of the Accessibility for Ontarians with Disabilities Act, 2005. https://www.ontario.ca/page/2019-legislative-review-accessibility-ontarians-disabilities-act-2005

[6] Lau, S-T., Nirmalanathan, K., Khan, M., Gauthier, C., Maisel, J., Novak, A. (2020). A Canadian Roadmap for Accessibility Standards, Canadian Standards Association, Toronto, ON. https://www.csagroup.org/article/research/a-canadian-roadmap-for-accessibility-standards/#heading-3

[7] Employment and Social Development Canada. (2023). Towards an Accessible Canada. https://www.canada.ca/en/employment-social-development/programs/accessible-canada.html

Recommendations to the federal government

Considering the adoption of the ACA in 2019, it is crucial for the federal government to prioritize actions that advance accessibility in alignment with its established objectives. To achieve an inclusive Canada for all Canadians, the federal government should consider:

1. Promoting accessibility standards, such as the CSA/ASC B651 standard for Accessible Design for the Built Environment. This standard provides guidelines for designing accessible buildings and public spaces and adopting this standard could play a crucial role in promoting accessibility for all, in new construction projects.

2. Establishing funding programs in collaboration with provincial and municipal governments, as well as private owners. These programs should incentivize the consideration and incorporation of accessibility measures during retrofits and renovations. Furthermore, all federal funding should be contingent upon adherence to accessibility and inclusivity standards, ensuring a comprehensive approach to building retrofits that prioritizes universal access and compliance with current codes.

3. Incentivizing and promoting higher accessibility standards for new projects and major retrofits, fostering innovation, and ensuring accessibility is integrated into all aspects of the built environment.

4. Increasing funding for programs and initiatives that aim to improve accessibility for people with disabilities. This could include funding for research and development of new technologies and design solutions.

5. Facilitating the development of a long-term strategy to harmonize accessibility requirements across provinces and territories, promoting consistency and clarity for industry interest holders , regulators, and the public.

6. Providing continued funding for accessibility certification programs to encourage building owners to adopt universal design principles and go beyond compliance. This support can enhance education, increase awareness, encourage interdisciplinary collaboration with engineers in the early stages of projects, and drive the widespread implementation of effective accessibility measures.

By adopting these recommendations, the federal government can reaffirm its dedication to realizing an accessible Canada. Collaborating with the engineering profession and incorporating the firsthand experiences of individuals with disabilities is important in ensuring effective design solutions. This collaboration should extend to engineering education and practice, expediting the integration of accessibility and Universal Design principles. By providing support and resources to the engineering profession, the federal government can foster the widespread adoption of accessibility measures and contribute to the development of a more inclusive society.

How Engineers Canada will contribute

Engineers Canada is committed to promoting inclusive design and ensuring the creation of accessible physical environments in Canada. Engineers Canada will continue to:

- Advocate for the integration of inclusive design principles and accessibility considerations in government policies, regulations, and initiatives.

- Monitor the government agenda, legislative initiatives, and proposed regulations related to accessibility and bring recommendations to the attention of decision-makers to influence the development of policies that prioritize accessibility and foster a more inclusive society.
- Provide input from engineers on federal legislation and regulations where engineering work would be in the public interest.
- Support the work of the engineering regulators to enforce the provincial and territorial engineering acts as they pertain to the practice of engineering disciplines impacting accessibility and inclusive design.