

## ADVANCING URBAN QUALITY THROUGH UNIVERSAL DESIGN PRINCIPLES

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This extended abstract developed as part of a master dissertation which explores the use of Universal Design (UD) principles in built environments to promote accessibility and inclusion, concentrating on the Ministry of Interior building in Nicosia, Turkish Republic of Northern Cyprus (TRNC). The study begins with a thorough introduction that explains its main goal, which is to integrate UD principles into architectural design in order to promote social inclusion, equality, and dignity and improve the city's quality. It emphasizes the intrinsic value of designing spaces that meet the many requirements of every person, regardless of their capabilities or limitations. This introduction establishes the framework for an in-depth investigation of the theoretical underpinnings of UD, shedding light on its core principles and applicability in the discourse around modern architecture. In this extended abstract, authors highlight the theoretical part of the study, and introduce the list of positive effects of UD on city quality through a case study.

**Keywords:** Universal Design, Accessibility, Inclusion, Architectural Design, Social Equity

The idea of Universal Design in architecture is a tribute to the progressive values of inclusivity, accessibility, and human-centered design in today's society that is continually expanding. The discipline of architecture has embraced Universal Design as a significant paradigm shift due to the growing acknowledgement of the freedom of all people, regardless of their skills or backgrounds (Stephanidis, 2009). The concept of Universal Design extends beyond simple adherence to accessibility guidelines. From the very young to the very old, from those with disabilities to those without, it involves an integrative approach that seeks to design environments, structures, and spaces that

naturally incorporate the needs and preferences of everyone (Vanderheiden & Tobias, 2000). This includes people from all ethnic and socioeconomic backgrounds. This idea came in as a direct reaction to the restrictions imposed by exclusive design methods, whereby spaces were frequently made specifically for a small group of users, unintentionally excluding many (Gould & Lewis, 1985).

The lack of Universal Design in architectural settings can lead to a variety of difficulties that affect users' daily life. The effects are severe, ranging from confronting impassable physical obstacles that restrict movement to the psychological cost of feeling shut out of areas intended for communal usage (Cunningham Cervantes, 1997).

The challenges associated with access, safety concerns, stress, reduced freedom, inefficient use of space and negative perceptions, at entrances to buildings are closely connected to the broader concept of urban quality. When accessibility is inadequate such as the lack of signs, elevators or ramps it restricts mobility. Hamper's access to essential services directly impacts the overall quality of a city. Safety hazards like slopes or insufficient handrails not only endanger people's wellbeing but also undermine the city's reputation as a safe and welcoming place. The emotional strain caused by Universal Design, in the city can isolate sections of its population and diminish its reputation as an inclusive and comfortable place to call home. The city's reputation as an inclusive and empowered community suffers from the diminished independence brought on by inaccessible structures and environs. The usefulness and comfort of public places inside the city are impacted by inefficient space usage, creating crowded and uncomfortable locations, which lowers the overall quality of urban life. A less hospitable and inclusive urban environment is a result of negative perceptions resulting from structures that neglect Universal Design principles, which has an effect on the city's reputation as a location that values accessibility and diversity. A city that prioritizes inclusivity, safety, emotional well-being, independence, efficient use of space, and positive perceptions fosters a higher quality of life for all of its residents and visitors, regardless of their abilities or backgrounds, so addressing these challenges is crucial for improving city quality (Steinfeld & Maisel, 2012).

One of the great architectural examples in this matter is; The Royal Museum, Toronto, Canada. Located in 100 Queens Park, Toronto the museum's architecture and facilities showcase its dedication to Universal Design in multiple ways designed. Built during the period 1910 until 1914 and additions were made during the period 1931 until 1932 by the architects, Daniel Libeskind, Frank Darling and John A. Pearson. In addition to being a center for culture and education, Toronto's Royal Ontario Museum is a shining example of accessibility and equality (Figure 1).



Figure 1. The Royal Ontairo Museum (COXON,2007).

The Michael Lee-Chin Crystal, a revolutionary addition designed by architect Daniel Libeskind, was more than just an extension, it was a declaration of inclusivity. Beyond only being aesthetically pleasing, this architectural wonder made a substantial contribution to solving accessibility-related issues in the museum. Easy navigation is given top priority in the design for all users, including those with disabilities.

The display and conservation of natural and cultural heritage are the main goals of the museum. In terms of accessibility, the museum has included elements like elevators, ramps, and well-planned walkways to guarantee that people with a range of abilities may easily move about the area (Figure 2). These components provide a proactive strategy for establishing an environment that meets the requirements of all individuals, going beyond simple compliance (COXON,2007).

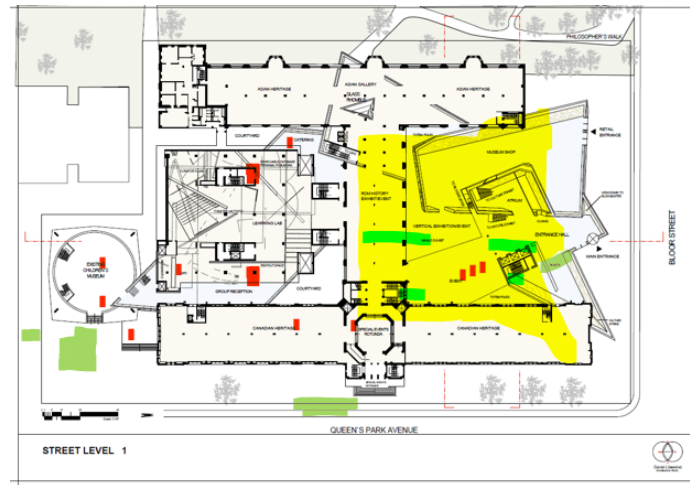


Figure 2. Ground Floor Plan, Ontario Museum (Beez, 2006) ([www.urbantoronto.ca/forum/threads/toronto-royal-ontario-museum-m-s-daniel-libeskind.471/page-138](http://www.urbantoronto.ca/forum/threads/toronto-royal-ontario-museum-m-s-daniel-libeskind.471/page-138) (Accessed on February, 2024)).

The Royal Ontario Museum's admissions policies give priority to making the museum accessible to people with impairments and their companions. Supporters of individuals with disabilities are entitled to free entrance equal to the supported person's bought ticket. There are three entrances to the museum, all of which are accessible (Figures 3,4,5). Easy access is provided by the moderate slope and automatic sliding doors of the Michael Lee Chin Bloor Street Entrance. Ramp and push-button automated doors are elements of the Weston Queen's Park Entrance, while the President's Choice School Entrance is outfitted with the same capabilities for school groups.

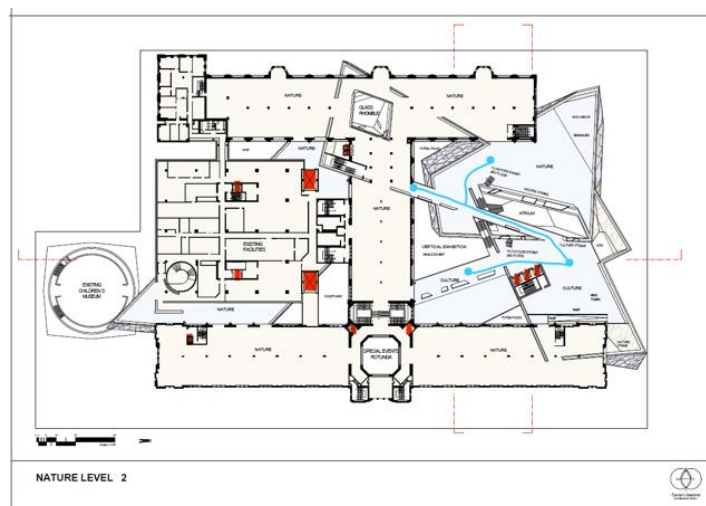


Figure 3. First Floor Plan, Ontario Museum (Beez, 2006) ([www.urbantoronto.ca/forum/threads/toronto-royal-ontario-museum-m-s-daniel-libeskind.471/page-138](http://www.urbantoronto.ca/forum/threads/toronto-royal-ontario-museum-m-s-daniel-libeskind.471/page-138) (Accessed on February, 2024))

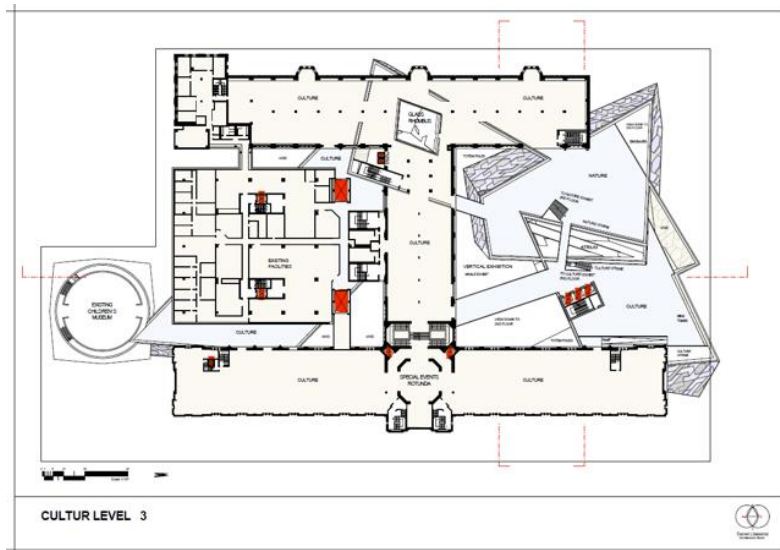


Figure 4. Second Floor Plan, Ontario Museum (Beez, 2006) ([www.urbantoronto.ca/forum/threads/toronto-royal-ontario-museum-m-s-daniel-libeskind.471/page-138](http://www.urbantoronto.ca/forum/threads/toronto-royal-ontario-museum-m-s-daniel-libeskind.471/page-138) (Accessed on February, 2024)).

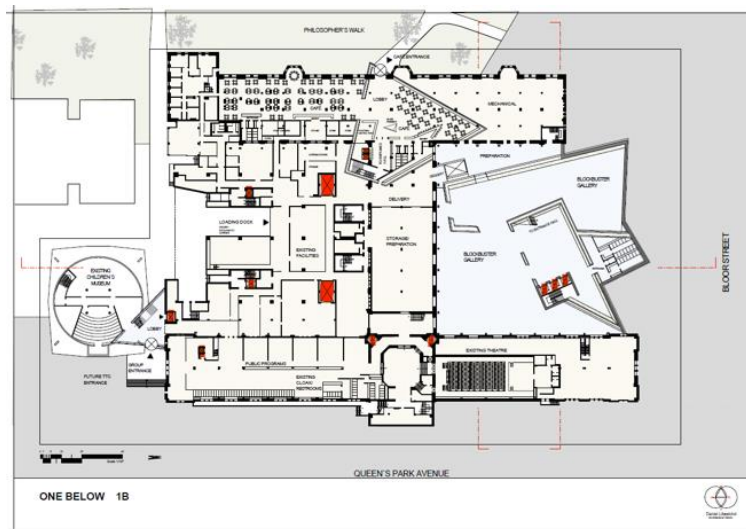


Figure 5. Minus 1 Floor Plan, Ontario Museum (Beez, 2006) ([www.urbantoronto.ca/forum/threads/toronto-royal-ontario-museum-m-s-daniel-libeskind.471/page-138](http://www.urbantoronto.ca/forum/threads/toronto-royal-ontario-museum-m-s-daniel-libeskind.471/page-138) (Accessed on February, 2024)).

Bloor Street West and Queen's Park have designated zones for drop-offs and pickups; parking is not permitted in these lanes. Wheelchair users can utilize the free manual wheelchairs available at coat check. Service animals are allowed at the museum; visitors bringing non-traditional service animals are asked to make earlier arrangements with the institution. In order to provide sensory-friendly experiences, the museum works with Autism Ontario and provides an online guide that includes advice and sensory notes. For programs and events, American Sign Language interpreting is provided upon request; hiring an interpreter requires at least 15 working days' notice. Visitors can obtain a variety of maps and guides from the museum's website to ensure accessibility (COXON,2007; Figures 6,7).



Figure 6. Illustration of a ROM elevator (n.d, 2018.) ([www.accessto.ca/home/2018/7/19/royal-ontario-museum](http://www.accessto.ca/home/2018/7/19/royal-ontario-museum)) (Accessed on February, 2024).



Figure 7. Illustration of ROM entrance ramps (n.d, 2018.) ([www.accessto.ca/home/2018/7/19/royal-ontario-museum](http://www.accessto.ca/home/2018/7/19/royal-ontario-museum)) (Accessed on February, 2024).

A comfortable and inclusive experience is further demonstrated by the museum's provision of accessible restrooms and seating environments (Figure 8). These characteristics attempt to improve visitors' overall level of participation, independent of their physical limitations, and go beyond merely fulfilling fundamental needs. Broader implications arise from the museum's commitment to Universal Design in terms of how it affects the quality of the city. It creates a model for other establishments and promotes an inclusive atmosphere throughout the city. By putting accessibility first, the museum becomes more than just a knowledge base, it also serves as an example of how cultural organizations can be inclusive of all people and promote a sense of community (COXON, 2007).



Figure 8. Illustration of ROM restrooms (n.d, 2018.) ([www.accessto.ca/home/2018/7/19/royal-ontario-museum](http://www.accessto.ca/home/2018/7/19/royal-ontario-museum)) (Accessed on February, 2024).

Table 1. Alignment of Design Considerations in the Royal Ontario Museum Case Study with Universal Design Principles (Authors, 2024).

Consideration of Designers	Universal Design Principle
The Michael Lee-Chin Crystal, designed by Daniel Libeskind, prioritizes easy navigation for all users, including those with disabilities.	Equitable Use: Ensuring the design is usable by people with diverse abilities.
The inclusion of elevators, ramps, and well-planned walkways throughout the museum facilitates easy movement for individuals with disabilities.	Flexibility in Use: Providing various methods for interacting with the environment.
Three accessible entrances with features such as moderate slopes, automatic sliding doors, ramps, and push-button automated doors ensure easy access for all visitors.	Simple and Intuitive Use: Designing features that are easy to understand and operate.
The provision of designated drop-off zones, free manual wheelchairs, and accommodations for service animals enhances the overall accessibility of the museum.	Perceptible Information: Providing clear and easily understood information.
Collaboration with organizations like Autism Ontario to offer sensory-friendly experiences and providing American Sign Language interpreting upon request demonstrates a commitment to inclusivity.	Tolerance for Error: Designing features that minimize hazards and the consequences of accidental actions.
The inclusion of accessible restrooms and seating environments aims to improve the overall comfort and participation of visitors, irrespective of their physical limitations.	Low Physical Effort: Designing features that can be used comfortably and with minimal fatigue.
The ROM's proactive approach to Universal Design promotes a sense of community and inclusivity within the city of Toronto, serving as a model for other establishments.	Size and Space for Approach and Use: Ensuring that spaces and features are accessible and usable by individuals with diverse abilities.



The application of Universal Design principles within the Royal Ontario Museum (ROM) not only fosters inclusivity within its own walls but also significantly contributes to the enhancement of city quality in Toronto. By prioritizing accessibility and implementing innovative solutions such as the Michael Lee-Chin Crystal and strategically placed entrances with designated drop-off zones, the ROM sets a precedent for other establishments in the city. This commitment to inclusivity reverberates beyond the museum's walls, shaping Toronto as a city that values diversity and ensures equitable access to its cultural treasures. Moreover, by offering sensory-friendly experiences, sign language interpretation services, and accessible facilities, the ROM creates an environment that welcomes individuals of all abilities, thereby fostering a sense of belonging and community within the city. Through its proactive approach to Universal Design, the ROM not only enriches cultural experiences but also contributes to the overall quality of life for residents and visitors alike, positioning Toronto as a beacon of inclusivity and social progress.

Study of successful architectural cases such as Toronto's Royal Ontario Museum and many more as part of the Master thesis entitled "Universal Design: Paving the Way for Inclusive Buildings in North Cyprus", helped the authors to develop a list which highlights the positive effects of application of Universal Design on enhancement of city quality;

Application of the studied solutions from the successful case studies can provide improvements in the city quality as in means by,

- Strengthens the city's standing as a friendly and easily accessible location for events.
  - Demonstrates a commitment to social responsibility and inclusivity, fostering a favorable impression of the city as diverse and accessible.
  - Enhances the city's personality and cultural diversity, fostering a livable and welcoming urban area.
  - The inclusive amenities support the city's reputation as a vacation destination that prioritizes the needs of all visitors.

- Contributes to the overall quality of the city by creating a more inclusive urban environment consistent with its values. • Enhancing accessibility positively influences the perception of the city's inclusivity as a whole.
- Redefines the environment by establishing a benchmark for Universal Design and accessibility.
- Attracts international recognition and attention during international events.
- Promotes economic expansion and adds to the cultural vibrancy of the city.

As the practical part of the master thesis, the provided Universal Design solutions and their effect on city quality have been applied on a case study in Northern Cyprus as well.

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