

---

# The intersection of accessibility, economic viability and democracy through universal design: how universal design innovations helped a leading research and treatment institution re-vision its identity and improve its operations in Canada and abroad

## Mary Jane Finlayson

B.ES, B.Arch, OAA, LEED®AP. (Principal: &Co Architects Inc.) Toronto, Canada  
mj@andco.com

## Abstract

The Canadian National Institute for the Blind (CNIB) is a nationwide, community-based, registered charity committed to research, public education and vision health for all Canadians. Its mission is to provide the services and support necessary to enjoy an improved quality of life while living with vision loss. &Co was commissioned to design the national Centre whose goal was to build a model of Universal Design, specifically addressing the unique needs of the visually impaired, blind and deaf blind. The principles of Universal Design provided guidance to the Design Team in responding to these needs, while also enabling the Centre to thrive in tough economic times.

The CNIB Centre makes the case that Universal Design is a vehicle for promoting social equality, environmental sustainability and human health and well-being. This is not simply design for equal use; rather, it is design for unfettered participation in everyday life, and in public life. In this way, the CNIB Centre demonstrates how Universal Design can broaden our thinking to embrace a more democratic approach to architecture.

## Keywords

Humane, Economic, Green, Universal Design, Accessibility

## Introduction

It can be argued that architects and planners have traditionally defined the “user” in limited terms, designing for only a small segment of the population and, thus, creating many problems for the countless people who do not fit such narrow definitions. Rather than recognizing the diversity of age groups, cultures, lifestyles and the varying levels of ability of those in our communities whom use buildings and public spaces, architecture and planning theory has, to a large extent, been based on a notion of the “user/citizen” as inherently able-bodied. Accessibility standards for accommodating the “handicapped” have typically only addressed a narrow set of parameters.

Conversely, Universal Design is integral to the design of products and environments that are usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. It is an evolving design practice that makes daily life easier, safer and more comfortable for all people regardless of ability, age, gender, culture or language. This is a concept that is entirely viable and one that makes economic and social sense.

The principles of Universal Design incorporate considerations such as economic, engineering, cultural and environmental concerns in the design processes. These principles offer guidance to better integrate features that meet the needs of as many users as possible. According to the Center for Universal Design, the effectiveness of design in the physical world is measured on the basis of many factors, including but not limited to the following: equitability, flexibility, simplicity and intuitiveness of use; the communication of information to the user, regardless of ambient conditions or the user’s sensory abilities; the minimization of hazards and the adverse consequences of accidental or unintended actions.

This philosophy informed our approach to the CNIB Centre. The old building that housed the CNIB was typical of many institutions, over-emphasizing the administrative façade and executive office function. Tucked behind the executive offices were secluded workshops for those with vision loss, where menial tasks such as packaging, caning and broom-making were conducted. These work spaces were not adequately equipped to help those with vision loss participate in the mainstream labour force.

Today, those with vision loss are integral participants in the Centre’s daily operations. The new building has transformed the long-standing institution into an open, caring, vital learning centre and workplace that serves both

the local community and the nation with its library, vision health and training facilities. With the use of technologically advanced aides and modern facilities, those with vision loss learn vital skills and make successful transitions back into the mainstream workforce.

The new, highly functional state-of-the-art building incorporates innovations that improve the living/learning facilities for visually impaired individuals, while allowing this non-profit to thrive in tough economic times. Energy efficiency, consolidated administrative support systems and sharing of the building amenities have all served to reduce annual operating costs. Savings in annual energy costs alone have been substantial. In fact, in a period of 12 years, it is estimated that these savings alone would amount to the cost of the new building itself.

## Approach

When the CNIB approached &Co to create a new vision for its beautiful 16-acre campus in north Toronto, Ontario, Canada, we set out to develop an innovative scheme—and ultimately a business plan—that would best serve the institution's needs; our approach entailed selling three quarters of the land while keeping the prime, accessible Bayview frontage and using the proceeds to fund construction of the institution's new facility. Even though there was less land, we managed to create a complex that does more with less.

The new 150,000-square foot CNIB structure sits like a sentinel atop an impressive embankment overlooking Bayview Avenue, a major Toronto arterial route. It is thoroughly modern, a 21st century emblem of the institution's progressive goals. The functional programme for the CNIB is robust, with unique facilities including those for the making of Braille and Talking Books, a Technical Aids Store, a Distribution Centre, and the Regional Teaching Centre with its high- and low-tech training facilities. We took an atypical client with an extremely complex program and learned its needs in order to help the institution thrive, searching for new opportunities for groups to interact, for possible shared facilities that can enhance the overall experience of inhabiting the building.

We were driven to build a Centre where all are welcome—a fitting home for CNIB's centre of operations in Canada. The challenge was to find clarity in the complex interaction between the four partners that comprise the administration and provide local and regional services to the clients. These partners are the National Office, National Library, Ontario Division and the Toronto District Office. The facilities programme succeeded in bringing together the four partners now housed within the facility, while inviting and encouraging collaboration among them.

A circulation spine (the same on each floor) is a vibrant highly functional element that organizes the programme components along each of its vertebra in a simple fashion with texture, colour and acoustics used to define boundaries, paths and destinations. At the centre of the building, the café acts as the “town square,” around which are many activities. It is a two-storey space that brings natural light into the core and spine of the building, further aiding in orientation and providing focus.

Glare is the enemy of the visually impaired. It literally blinds. As such, glare and light levels were controlled through the use of interior and exterior shading devices, indirect lighting, translucent wall panels on the west façade, matte sealers and low-glare materials throughout.

Landscape was also a key consideration. We did not want to build a stark structure antithetical to the nature that enconces this institution. We fundamentally understood that the landscape of this site has always been vitally connected to the building and its occupants. Positioning the building and roadways relative to the four new, and entirely distinct landscaped spaces, was critical to making a safe and enjoyable pedestrian environment on all four sides of the building. The new building hosts distinct landscaped spaces, each connected to a public space within the building. We created an environment that goes beyond the principles of Universal Design as all the senses are engaged to facilitate independent passage through the building.

CNIB Centre is surrounded by distinct landscaped spaces that connect the building to its natural environment through texture, colour, acoustical boundaries, paths and destinations. As a counterpoint to the mainly rectilinear lines of the building footprint, the Fragrant Garden's curved curbs and paths—differentiated by texture, colour and contrast—twist and wind fluidly through the building's grounds, animating the gardens, paths and terraces where visitors and staff interact. Through a trail of sights, sounds, aromas and textures, navigation is made easy and intuitive. The experience is welcoming and intriguing as the building's inhabitants traverse the stimulating new spaces—entering the protected, quiet Fragrance Garden, with its aromatic plants, seating and water feature; sauntering across the more boisterous western terrace, with its wide vistas; or visiting the serene north Shade Garden that sits along the stately ravine edge.

## Results

It was &Co's objective to employ innovative principles of Urban Design to develop a building that would facilitate the needs of its occupants. In the end, we designed a building that contributes to the improvement of people's lives.

Unlike its predecessor, the new CNIB Centre is community-oriented and client-centred. The focus, through design, layout, materials and accessibility features, is on the rehabilitation of Canadians with vision loss. The Centre's design invites occupants to navigate independently and intuitively through space, encouraging collaboration and creativity, advocacy and inclusion.

To quote the client, the new CNIB Centre has allowed the occupants of the institution to "discover synergies that make us truly more than the sum of our parts. Our new home is a concrete demonstration of the evolution of the organization... This building is exceptional not extravagant."

The design innovations challenge the principals of Universal Design, offering a model of unparalleled accessibility and accommodations for those living with vision loss. At a time in history when everyone seems focused on "green" issues, Universal Design is rarely a focus. The CNIB Centre is one of the few buildings in the world that embraces and celebrates the principle of Universal Design.

The experience of communication and innovative collaboration was only deepened through our work with the CNIB. If the goal of Universal Design is to design spaces and objects be usable by all people without the need for adaptation or specialized design, a more participatory and inclusive design process seems to be one useful way of achieving this. That is why our design consultation and presentation methods were revised to accommodate our blind and visually impaired clients. The focus of communication shifted from 2D drawings to models, tactile plans and diagrams, Braille, mock-ups, large samples and, simply, the spoken word.

We endeavored to challenge our client to embrace new organizational concepts that would ultimately benefit the institution and reinforce the brand. For example, the groups who had always been in separate facilities all came with their space programmes that included their own complement of meeting rooms, offices etc. We showed them that although there were occasions when all the meeting rooms were in use, most of the time they were vacant and the space was underutilized.

We went on to demonstrate that if they combined all of their meeting rooms into a "Mini Conference Centre" there would be greater flexibility with rooms of varying size and accommodation. Moveable walls between the largest of these rooms provide the flexibility to have a venue that accommodates over 300 people. This approach also yielded a facility that generates income for the CNIB and is widely used for outside conferences, weddings, Bar Mitzvahs, etc.

This is smart business for a non-profit organization such as the CNIB.

According to the client, the conference spaces have been critical to their business, providing additional annual revenue. And the client also enjoys the synergy of interacting with the community at large that this grade-related wholly accessible rental facility allows. Additionally, energy efficiency, consolidated administrative support systems, and sharing of the building amenities have all served to reduce annual operating costs.

The CNIB had a strong vision for the new building and was able to visualize space in "the mind's eye," articulating what they could not physically see. We learned much from them about the limits of our own perceptions. In our exchanges with the CNIB, the tables were often turned—we were the "sightlings," the ones who were visually dependent, the ones who had a lot to learn from the way the blind and visually impaired think about, and move through, space. In the words of the then-Governor General of Canada at the opening of the new CNIB Centre:

This is how a place that was built to be useful becomes, in its own way, a work of art... It's insight that we're after... So much of what we call "consciousness-raising" is as simple and as essential as being able to imagine what it is like to walk in someone else's moccasins. This building – so thoughtfully designed and executed, so in tune with the CNIB's mission to foster equality and independence – will certainly amplify the Institute's ability to serve the visually impaired. For the sighted, as well, this is a fascinating place that stimulates all the senses, that offers many ways to open our minds to the challenges and to the abilities of the blind. (Adrienne Clarkson)

## Conclusion

The CNIB exemplifies an all-inclusive approach to architecture – and it demonstrates how we used principles of Urban Design to transform our clients' core values into a beautiful place that inspires and uplifts the spirit. Nothing gave us greater satisfaction than witnessing the delight on the faces of the CNIB and their clients when they came to see the new completed project and opened their doors to show off their new home to the community. A design approach rooted in principles of Universal Design enabled the CNIB to metamorphose from an introverted, sheltered institution into a mainstream workplace and proud showcase with leading-edge training and conferencing facilities.

As we have seen, Universal Design is not be confused with accessible design. Universal Design is an evolving practice that makes daily life easier, safer and more comfortable

for all people regardless of ability, age, gender, culture or language. It is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. Although it may not hold the same cache as other movements in architecture today, the lessons learned at the CNIB now allow us to knit these principles seamlessly into all our other buildings, without the “institutional” appearance. In many ways, the CNIB Centre has shifted traditional notions of design by employing Universal Design to invent new and creative ways of thinking about space. The end result is a building that is functional, democratic in its accessibility, and economically sound.

---

## **The Mountain Women: Design as social- environmental integrating tool through sustainable handling of wool**

**Fernando B. P. Leme**

**Manuela M. Yamada**

**Pedro C. Palmier**

**Maia F. Matida**

Pontifícia Universidade Católica do Rio de Janeiro.

Brasil

betim@puc-rio.br

### **Abstract**

This Project aims a social and productive integration of the women living in the traditional community of Monteiro District based on the retrieval and revitalization of sheep wool traditional techniques handling.

Brazil colonization commencement place, historical Serra da Mantiqueira range was explored in multiple ways, and its consequence was native forests degradation and impoverishment of folk traditional knowledge.

Shepherd husbandry reintroduction in this region associated to teaching shared with the School of Design from PUC-Rio allows to recognize, valorize and stimulate wool spinnery and dyeing artisan techniques for textile production.

Here we'll show how the partnership between the community and PUC-Rio Design School is strengthening the local social-environmental retrieval boarded on sustainable development instruments.

### **Keywords**

Wool, social insertion, design, traditional folk knowledge, sustainability

### **Foreword**

At present, 80% of Brazilian population is concentrated within urban areas, situation extremely different from 50 years ago as stated by Santos M. [5]. Production devices