Modern cities are vibrant and bustling places, and they can present many challenges for the visually impaired and differently abled. It is the main goal of any urban planner to design user-friendly cities which are easily navigable, safe and enable people to go about their business with confidence. Australian Standards sets forth a range of guidelines to enhance access to public spaces, but the reality is that these are not always adequately adhered to. In this article, we will be discussing the ways in which access to public spaces can be enhanced for the differently abled, with particular regard to the visually impaired. We will also be taking a look at what Australian Standards has to say about safety.

Safety Concerns – Common Experiences of the Visually Impaired

Each city has its own character and unique design language, and this can span from compact and organised through to expansive and informal. The main issues encountered by the visually impaired have to do with lack of appropriate signage/wayfinding assistance, as well as poor implementation of tactile ground surface indicators (TGSIs), handrails and stair nosings at places such as entranceways and stairways. These areas need to be designed in a safe manner, as they can pose serious trip and fall risks for all pedestrians. The best way to achieve optimal safety is by ensuring that products meet sufficient luminance contrast and are installed in compliance with all technical requirements, such as the specification for TGSIs to be installed at a minimum 300mm setback. Braille and pictorial signs should also be used wherever possible, such as in front of public toilets, glass doors, shop entrances etc as this will help to supplement vision-based direction.

The visually impaired rely heavily on their sense of hearing, particularly in environments which they frequent regularly. Auditory cues such as noises and voices help them find their way around, but in busy CBD areas this can become an issue. Buskers, bands and pop-up events are a regular occurrence, and the unexpected noise in an otherwise relatively quiet environment can throw them off considerably, resulting in disorientation and potential injury.
The visually impaired also frequently remark that announcements at train and bus stations can be quite inconsistent, and in some cases barely audible amongst the noise of fellow commuters. This can result in them missing their train/bus, along with eventual loss of confidence and independence. Suggestions by the blind community have been made to develop smartphone apps which would alert them to the arrival of a bus/train, or at the very least to improve the consistency and audibility of announcements.

**A Changing Landscape – Unexpected Safety Risks for the Visually Impaired**

Cities are constantly developing, and increased levels of construction around pedestrian areas can significantly impact the safety and confidence of the visually impaired as well as other pedestrians. Whilst these construction works are necessary to create new infrastructure, safety of pedestrians is often neglected.

The most common method for sectioning off construction works is the use of plastic cones. Whilst these are bright orange in colour, they are considered an inadequate solution for most applications due to their small size and the fact they can easily be moved, creating unclear boundaries which are not easily identifiable by the visually impaired. Works involving holes or construction workers occupying the space should instead make use of Telstra type barricades, concrete barricades, plastic barricades and wire mesh or panel fencing. Keep in mind that the visually impaired rely heavily on their guide dogs and the use of their cane, so the chosen barrier should be easily identifiable to ensure optimal safety.
Everyone needs access to essential services such as banks, shopping centres, hotels and public transport hubs. These environments can be particularly challenging at times for the visually impaired due to the constant flow of traffic, changes to entry points and refurbishments. Orientation and Mobility service providers such as Guide Dogs can assign mobility instructors to assist them in familiarization and safe navigation, but there is much more that could be done. Many visually impaired people value their independence and would like to be able to navigate their surroundings unassisted, and this is where technology can help.

**Technologies and Design Practices to Enhance Safety and Improve Navigation**

One of the biggest issues for the visually impaired is the ability to know where they are headed and where escalators, lifts etc might be located. New technologies such as mobile portable devices or electronic travel aids (ETAs) are now being developed to assist the visually impaired, along with inbuilt electronic systems which can be used in conjunction with a handheld receiver. Transmitter beacons can be installed at key locations of the built environment, and the visually impaired can point their receiver at each beacon to receive auditory information relayed via infrared or radio transmissions. The information given include: accurate description of the location, key information such as opening/closing times, and the function of services within the area.

Technology is still developing, but it is hoped that in future the use of Global Positioning Systems combined with Bluetooth sensors and voice instructions will become more accurate and widespread, as this will provide the community with detailed location information (distances, important landmarks etc.) that would significantly enhance the accuracy of individual location tasks. If we wish to see widespread adoption of these technologies, it would also be necessary to implement a new standard for worldwide compatibility of transmitters and handheld devices in all buildings/venues.

As a leading supplier of safety products within Australia and New Zealand, Classic Architectural Group believes that further consideration should also be given towards Tactile Indicators (TGSIs). When used in conjunction with good design principles, TGSIs will provide adequate warning of impending obstacles or hazards to improve safety for the visually impaired. Rather than simply placing TGSIs on flat surfaces, studies have shown that the use of continuous ‘lead lines’ can help in guiding the visually impaired towards their destination.

By ensuring that paving is even, kerbs are clearly defined, cross-walks are perpendicular to the kerb and appropriate tonal contrasts are used, designers can create a coherent pathway of natural leading elements. TGSIs can then be installed to further enhance safety, and this would improve both orientation and safety for the visually impaired.

Other tools to enhance awareness and navigation include:
- Infrared audible signage
- Talking lifts
- Smartphone applications for wayfinding
- Virtual reality glasses that can recognise faces and generate a 3D view of the surrounding environment/obstacles (currently in development).
What Do the Standards Say About Safety?
In accordance with AS1428.1 and the Disability Discrimination Act 1992 (DDA), fair and equitable access to the built environment must be provided to the differently abled. It is unlawful to discriminate against any person because of their disability, so it is imperative that cities are equipped with appropriate safety devices and technologies to assist this group.

Standards cover every area of public life. The Building Code of Australia Part D3 contains the minimum requirements for disabled access in new and renovated buildings, as well as the Transport Standards for accessible public transport. The standards aim to provide builders and planners with a clear understanding of dignified, cost-effective and achievable solutions that will improve access and safety for the differently abled community, enabling them to participate to their full potential in the economic, social, cultural and political life of Australia as equal citizens.

Unfortunately, the standards are not always adhered to, and the blind community continue to experience issues on a regular basis. A lack of national consistency is a major issue, as each state or building contractor in Australia can interpret standards in a different manner. In many cases, installers take a “near enough is good enough” approach. New regulations along with the introduction of a universal design language for cities and transport infrastructure could go some way in solving this dilemma.

The blind and vision impaired were invited to respond to the Disability Standards for Accessible Public Transport Review 2012, and many commented that the experience of trying to catch public transport or negotiate their way in busy areas was a stressful one due to a range of factors, including inadequate and poor implementation of standards. Naturally this is concerning, because it puts their safety at risk and limits opportunities for employment, access to services and social engagement.

Closing Statement – The Future of Safety
The visually impaired face numerous challenges within the city environment. As assistance technologies continue to gain traction and improve, we should also take care to ensure that safety products are installed in accordance with regulations and best practice. The visually impaired rely heavily on their hearing in addition to predictability and adequate supply of information for successful independent navigation. The current standards often fall short, and there is a need for ongoing dialogue with the visually impaired community as well as the introduction of universal design in both public spaces and assistance technologies around the world. When good design principles and the power of technology are combined with safety products such as TGSIs and stair nosings, confidence and safety for the visually impaired in city areas would be greatly enhanced. For more information on current standards, their application and safety products, contact Classic.
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