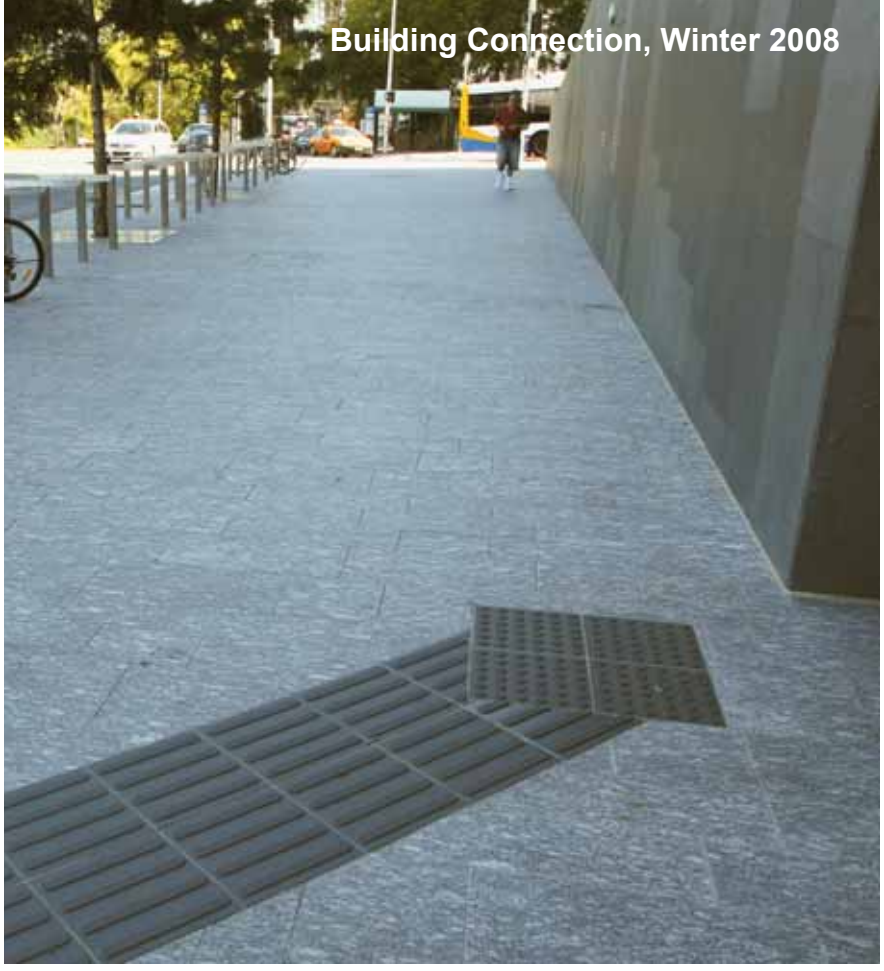
wayfinding

Enter the navigators

There are many visual clues and signs to help us negotiate the built environment. But how would you fare if you were among Australia's thousands of vision-impaired citizens, asks Jonathan Green.



This tactile wayfinding trail and shoreline in Brisbane provides a direction of travel for a vision-impaired person. Inset: Adding Braille and tactile markers to information signs is an easy way to help vision-impaired people navigate through a built environment.

Some signs are so familiar we generally don't notice them – 'Exit', 'Toilets this way', 'You are here'.

But you couldn't imagine doing without them when on holiday at a new location or just visiting a building for the first time.

These signs are the obvious visual elements of the architectural concept of 'wayfinding' – essentially, the navigational guides that help us to establish where we are and how to get to a new location. We negotiate our way with the aid of signs, paths, landmarks, lighting, edges and even postcodes.

If you then consider how the estimated 400,000 vision-impaired people in Australia navigate, the concept of wayfinding becomes far more complex.

In this sense, wayfinding begins to encompass elements such as audible, tactile, spatial and even aromatic senses (the smell of a coffee shop, restaurant or plants) to act as guides.

In an effort to make the built environment more accessible to vision-impaired people, a thorough research project was undertaken by the Co-operative Research Centre (CRC) for Construction Innovation – a national research and development centre headquartered at Queensland University of Technology under the Australian Government's Co-operative Research Centre Program.

The findings have been tabled, and used in two publications – *Wayfinding Design Guidelines* and *Wayfinding System Audit* – providing tangible strategies and a user-friendly audit book for the industry.

"Originally the project idea came from Blind Citizens Australia, which wanted some work done," CRC project leader Dennis Hogan says.

"This was essentially because wayfinding for people with vision impairment is not currently considered in the Building Code of Australia (BCA).

"There are areas that address things like ramps and access for people with disabilities, but the specific of wayfinding is not directly addressed.

"The Australian Building Codes Board (producer of the BCA) worked with other partners of the CRC for Construction Innovation, Building Commission Victoria, Queensland Government and CSIRO to put it together."

The project was conducted through two separate trials over three years. The first explored and tested technological opportunities; the second concentrated on design and environmental access in the built environment.

"It is very hard to write building regulations for a specific topic such as this, so we needed some research and background work to establish what was actually out there to assist people who are vision impaired," Dennis says.

"We looked at simple scenarios – such as going to a major building you hadn't been to before. Once you're out on the footpath, how do you know where the front door of the building is? And once you're inside, how would you know which lift bank to go to, or where the toilets are? It's obviously very difficult."

With the first trial concentrating on navigational aids, Dennis says the initial step was to establish what was available in regard to technology, equipment and general developments. Once the list was created, the objective was to test some of the innovative ideas, products and options in a real-life environment.

"The Melbourne 2006 Commonwealth Games provided the perfect opportunity to conduct the trial.

"We set up a system that consisted of a Bluetooth technology linking a wireless earpiece with the iHubs (about 30 touch screen information booths throughout the Melbourne CBD).

"The iHubs were loaded up with recorded messages, and when the individual came within a 5m radius of the hub, the Bluetooth activated and the message came through an earpiece.

"These messages were tailored to give users specific information about the location of the iHub, such as where they were standing. Or there could be directions for getting a taxi, train or tram – or any other relevant information."

Although Dennis says the trial was "a bit limited", it was extremely successful. There were reports of a "look of delight" that came over people's faces when they were able to get personal assistance without having to depend on others.

"We believe the trial demonstrated what could be achieved at a broader level. The challenge is now for someone to develop this technology or system and make a commercial venture out of it."

The second trial was conducted in the Brisbane CBD and focused on how builders and designers can make buildings more accessible to vision-impaired people through design and structure.

In this phase, information was collected on obstacles (physical and psychological) in the built environment. Design solutions and strategies were then worked through to combat the problems.

"We hope there will be many solutions on a technological front in the future, but there are basic design issues that are very important in making a building more accessible," Dennis says.

"These are issues that can be looked at immediately and should be taken into consideration for any future developments."

The results demonstrated that open space, an abundance of natural light and large colourful aids should all be considered as fundamental to making an area more accessible. And simple solutions such as providing information material (location maps, public transport timetables, etc) in large print or Braille could be implemented easily.

Entry points, lifts, toilets and public areas can be made easily identifiable in more ways than by putting up signs. Significant landmarks, large open entry points, and tactile guides (surface markers as often seen on city streets) help navigation.

It was also found that reducing excessive noise is important, as vision-impaired people often rely on their other senses. ➤

The Wayfinding **project trialled a Bluetooth technology which interacted with the 'iHub' information booths to provide information and guides about the area.**

The full findings are available in *Wayfinding Design Guidelines*, and the subsequent *Wayfinding System Audit* is a logical guide for building owners, builders and designers to self-assess and work through solutions and strategies. Copies are available from the CRC for Construction Innovation.

"These documents are not a substitute for the BCA or the Australian Standard 1426; they are complementary to it and make reference to them," Dennis says.

"They can be used as a 'solution system' for alleviating problems, and they will need to grow with innovation."

Wayfinding is not legally enforced at this stage, but Dennis believes there is a growing social expectation about the subject. A building that is easily accessible to all people is generally viewed as 'responsible' and will add value to the site and its occupants.

"I have no doubt that this is what will become expected in future. To be honest, I think it is expected now, but not necessarily adhered to.

"Some buildings – say, for example, a factory – will obviously be very difficult to work with and may not really be a priority. But it is a matter of time before any public building will be required to factor in wayfinding for the vision impaired."

A residential focus

Although *Wayfinding Design Guidelines* and *Wayfinding System Audit* are written with commercial buildings and spaces in mind, the same principles can be applied to a residential environment.

Cheryl Cohan is founder of Help in the Home, a support service business that co-ordinates assistance for people in need. It offers an extensive range of services for people with disabilities, those recovering from accidents or injuries and, in most cases, for the elderly.

The principal aim of the business is to provide support for people to enhance independence and improve confidence in the home.

Cheryl is legally blind which, combined with her extensive experience in helping others in need, means she has intimate knowledge of design strengths and flaws in residential buildings.

"Most people who are vision impaired have some sight, so designs that are clear of obstructions and help differentiate and organise are extremely useful," she says.

"Simple and practical design is fundamental, but that doesn't mean it has to be ugly.

"It's not realistic to think that everyone who is vision impaired is able to build a house from scratch, so I like to think of things that could be done if you were to undertake a renovation."

Starting at the outside of the house, Cheryl suggests that clear and level space with a landmark or point of differentiation is helpful.

"I have a large white picket fence, which is different to many of my neighbours' fences, so that is a big positive for me.

"Something like the driveway can also work very well. Obviously it is preferable to have an even and clear surface – we used to have a driveway with two lines of paving and a grass strip in the middle which was very difficult – but that doesn't mean it has to be flat concrete.

"There are companies that make brightly coloured or patterned options. These can still be smooth yet provide a point of differentiation from other places."

The same theory can also be applied to pathways through gardens and to the front of the house, with mini-lights or sensor lights providing added direction.

Inside the house, Cheryl suggests keeping the layout as simple as possible. Many obstacles and difficulties can be avoided with thoughtful design.

Good lighting and the use of light colours is considered very effective and a straightforward house plan promotes confidence.

"To say that clear and level doorways are important sounds simple, but then someone will put in a sliding door at the rear of the house that runs along a track – and the track becomes very dangerous.

"Some dwellings have a family room lower than the rest of the house for aesthetic reasons, and that obviously requires steps."

Although it is preferable to have no steps in the house, there are scenarios in which it is unavoidable.

"If steps are necessary, they should be even in size. Something with a few small steps followed by a big one may be easy when going up but can be very dangerous when descending.

"If a staircase is required it should be straight. And it's most important to ensure the handrail reaches all the ➤

way to the end of the steps. People often stop a handrail short, and that can cause big problems for someone who is using it as a guide."

When assessing the amenities of a house, Cheryl says some simple alterations can make an enormous difference for someone who is vision impaired.

"Island benches are pretty standard in most houses – I've got one. When I get my kitchen renovated, I'm going to get a raised edge – like a lip – put on the outside edge.

"I want it to be a reasonable height so it will act as a barrier, because it's very easy to knock things off the back of the bench. I could be cleaning the bench and not be aware of a glass or coffee cup, so when I'm wiping it gets knocked over."

Cheryl says that dividing cupboards into compartments would be useful – not only to help differentiate where things are, but also to stop items becoming messy.

"Individual places to put things are very important throughout the house. When items like remote controls are stored in a specific place it helps a lot."

These suggestions relate to simple and consistent designs in which practicality is given preference over looks.

There is a market for builders and designers at a renovation level to provide solutions for people who want to feel more confident in a house.

"In time, most people become familiar with their own home and manage to work their way through it," Cheryl says.

"For me, it is an issue of being sensitive to others so that vision-impaired people aren't restricted to their own home.

"I've probably been guilty in the past. I was involved in the hospital scene for a long time and was part of many project control groups that managed huge capital works projects and designed hospitals for the modern scene.

"I feel quite embarrassed now that I let things pass in the design phase that I probably would be sensitive to now.

"In fact, many hospital design groups now have consumer representatives to ensure plans meet everyone's needs. If you ask around, you'll find that the answers are pretty simple." ■

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