DESIGN FOR THE DISABLED
An exploration in design for movement

Audrey King, aged 27, confined to a wheelchair since a child, leaves her apartment to visit a newly-opened public library. In the elevator she touches the button with a ‘wand’ and at the ground floor, deftly manoeuvres her motorized wheelchair to force open the too-heavy doors.

Six minutes later she sits motionless in front of a four-inch curb leading into the new library, powerless to move until someone passes by.

During her lifetime, Audrey has met many such physical barriers: steps, steep ramps, spaces too narrow for her chair and built objects out of reach. For her, life is a very real hurdle, and at times her pent-up frustrations explode and are directed against what social scientists call the ‘visibility factor’. In this case, it is the architectural profession. From Audrey’s viewpoint (and she tries to be objective) the architect is the villain. She is one of the estimated 10 per cent of our population who is in one way or another handicapped, and rightly or wrongly she believes that the architectural profession is responsible for the physical barriers she meets when attempting to travel the city, gaining access to buildings and living within those buildings.

This over-simplified introduction illustrates a situation that is both tragic and complex. It is a situation where architects suspect emotionalism and where the handicapped suspect architects. They are seen as tools of avaricious owners and indifferent bureaucrats.

Audrey is angry because our cities are not designed for the disabled. How can she expect otherwise, with the architectural profession still wrangling as to how it can make the city fit for the able?

Who is to blame for the barriers? Is it really a cold-blooded architectural profession? Is it a total society which still retains prejudice against the handicapped? Is it that reliable scapegoat – the developer, intent on saving a buck? Is it the politician who does not live up to his blandishments made during election time?

Is it because the very fierceness of the handicapped population’s search for independence has created an over-proliferation of groups representing all forms of disability – each seeking acknowledgment? (There are at least 22 major organizations in Canada representing 13 bodily illnesses contributing to disablement. England has at least 47 organizations).

It is more than likely that all of these factors contribute to a lack of awareness for the disabled, but the key phrase is one that occurs time and time again: architectural barriers. In his brief introduction to the CMHC report, Housing the Handicapped, G. Gingras, the 1973-74 Canadian Medical Association president, uses the phrase three times. Other reports use it lavishly.

The phrase is unfortunate in many respects, because it is used indiscriminately wherever a disabled person meets a physical barrier – even one that cannot be blamed onto the architect. There are, it would appear, no ‘engineering barriers’. There are no ‘transportation barriers’. There are no ‘social barriers’. All is encompassed under the umbrella of architecture. The phrase is also unfortunate in that it implies that all architects are ignorant of the problems. This is not true.

During the past years many architects have made significant contributions to making buildings more suited for the disabled at no loss to the able. Again, few handicapped seriously believe that the architect is lacking in sympathy. What is evident, however, is that many architects are ignorant of what can be done to break down the barriers and even if they are knowledgeable, frequently fail to convey their expertise to the client.

Sadly, the remedies are often trivial, and in our visual essay, Audrey King identifies some of the more subtle barriers that exist in one or two well-known Toronto buildings. One is Ontario Place, a project where the architect established design requirements for the handicapped.

Eberhard Zeidler, the partner in charge of design for Ontario Place, has bitter memories of Expo 67. ‘I carried a handicapped person through the exhibition – it
wasn't designed for the handicapped. We needed two helpers to carry the wheelchair and its occupant up three flights of stairs.” But, Zeidler admits, the problem must be placed into proportion. “While we should not have to drag a wheelchair up three floors, we cannot eliminate all the stairs. I think we have to look at the overall problem of designing a city and remember that both disabled and able are important as people. A city must be designed for children, old people — all people. And at the moment all buildings are a compromise. We haven't yet found the ideal one.”

Vancouver architect, Barry Downs, whose firm Downs/Archambault designed the Vancouver Paraplegics Lodge (The Canadian Architect, February 1974) feels very strongly that architects “ignore their responsibilities to the handicapped. “Architects have been too busy designing monuments. They should serve more as an interpreter of client needs. It just isn't good enough any more for an architect to do just what he is told. I know a lot of architects who will agree with this but when faced with the challenge they surrender. They must stand up for what they believe in.” These are heady words, but Downs and Archambault practise what they preach. Recently, they tried to convince a client for a college project that while the college may not have handicapped students at present it may have in the future, and provision must be made for handicapped visitors. But Barry Downs admits that the firm was only partially successful. He also believes that architects must recognize that the problem is a dual one: handicaps can be both physical and mental, and he feels that architects must discuss the psychological problems that exist with the handicapped. “I am aware that there is a limit to the amount of individual design and attention that can be accounted for in architectural design, but in the physical aspect, I am often surprised to discover that when we think we have solved the problem we are in fact creating a hazard or barrier.”

Barry Downs’ comments are sympathetic and perceptive, but we doubt that many architects have the skill to recognize psychological problems and we assume that this insight would be gained through a team approach using a trained psychologist. But we do agree that architects should learn more of the psychological implications without resorting to actual analysis.

Pamela Cluff, with her architect-husband Bill Cluff, has become known for her work in the field of design for the handicapped. Mrs. Cluff, a member of the (Toronto) Mayor’s Task Force on the disabled and elderly, insists that many barriers can be eliminated without great cost.

Although reluctant to admit it, Mrs. Cluff often treads on the toes of her fellow professionals. Earlier this year she chaired a panel discussion at the OAA annual convention on design for the handicapped. Among the panelists were a psychologist and handicapped people. As the panel hurled their accusatory remarks at members of the audience they in turn became noticeably hostile to the speakers. Cynicism because none of the panelists mentioned costs? Or guilt because many knew that they had never battled a client for small mercies — such as eliminating a four-inch curb? It’s difficult to say.

The architect, Mrs. Cluff comments, has the responsibility to make sure that our cities can be used by everyone. “Can you deny a person in a wheelchair access to a theatre or restaurant because of four steps to the entrance, a door too narrow to accept a wheelchair or no ramp for a building raised on a plaza? Some of our friends are forced to enter a building through the loading dock — a most degrading process.” Many architects, she adds, just do not think about the problems. They fail to design for the handicapped in the building’s initial stages.

It is interesting to pause here to touch on the subject of “educating the public and the client.” Pamela Cluff believes this to be an architectural responsibility. We agree that the architect has an obligation to know what is required by disabled people and to do his best to persuade his client to incorporate this into the building program. But the call for the architect to educate “society in general” is nonsense. Curiously enough, we have never seen a report which suggests that the still powerful CMA play a part in educating the public — and client. The medical profession, through various channels, helps educate the public in cardiac disease, a matter of life or death and mental health. It even managed to force one of the most powerful lobbyists — the cigarette industry to widely advertise that smoking could cause death by cancer. Should not the CMA do more to enlighten society and building owners about our handicapped and their needs?

If readers feel that the problem is simple, let’s look at one area alone: the disabled person who wants to live in a high-rise building. While there is no evidence of active opposition by fire authorities, it is a fact that some are afraid that if a fire occurs in a high-rise apartment one handicapped person dies the resulting public outcry would be as though 20 ambulatory people had died. But disabled people who want to live in high-rise buildings are willing to take the risk of fire breaking out — one person has been known to insist that he has as much right to die as anyone else. The question is really academic, because we all know that if a fire occurs on the 49th floor both able and disabled are beyond reach of the ladders and must depend on fire barriers until the firemen come. Again, should disabled people...
in high-rise buildings be located on the lower floors? "No", says Pamela Cluff, "That is segregation. If a handicapped person is confined to the ground floor can he or she be stopped from visiting a friend on the 10th floor? And if he visited the friend, would he be forced to return to the ground floor to use a washroom?"

One big question that is glossed over is who pays for the facilities for the handicapped? In the public sector everyone has an answer: the taxpayer. But in the private sector? The Mayor's Report for Toronto says that in the United States the added cost of making a new building fully accessible amounts to less than 0.1 per cent of the total construction cost. Eberhard Zeidler feels that while many minor problems in building design can be eliminated, the cost to society for organizing design on a major scale would be large. Mike Byrne, a Maritime architect, is reported as telling a meeting of the Canadian Paraplegic Association that a mandatory code is the only way to design buildings for the handicapped. The main problem, he says, is in "finding a client who wants the changes to be made and is willing to pay for them. We as architects are often asked to accommodate handicapped persons to a point but there is always a point where the client is no longer willing to pay for the conveniences."

Meanwhile, reports and task forces continue to examine the problem. One such document is CMHC's Housing the Handicapped which will be published very shortly. Prepared with Nils Larsen as research architect, the report is an advisory one only and contains a section on minimum criteria. A slightly revised version of the criteria is now being prepared as mandatory requirements for most CMHC financed housing. The (Toronto) Mayor's Task Force report contains a detailed analysis of specific situations, and recommendations. The report also contains Supplement No.5 of the National Building Code. This is a revised version of the 1970 edition, and is now being reconsidered by the federal and Ontario governments as a possible basis for mandatory action.

The City of Vancouver has taken the initiative in establishing design standards for the physically handicapped as outlined in the building by-law number 4721 effective since September 1973. This innovative document has set up design criteria for buildings of or exceeding 5,000 square feet (exception of apartment buildings which are listed under a separate provision) for elements such as walks, entrances to buildings, doors and doorways, elevators, floors, toilets and public telephones. For example, a building must have at least one entrance with suitable access for a handicapped person and the entrance must be clearly marked with the international handicap symbol.

The Department of Human Resources has recommended that the by-law be adopted as established design criteria for the province of British Columbia. Already the Department of Public Works has accepted these design standards in the planning of all provincial public buildings.

For the architect, there seems to be no formalistic approach to solving the problems. There are too many individual situations, too many complex factors, too many obstacles in finding a common thread for building design and in deciding who will pay. While the architectural profession has been made a whipping boy to some extent, we believe that to focus more attention on designing for the handicapped will help restore a general belief that the profession is truly concerned with the public good. We are not merely talking numbers; one handicapped person affects the lives of all those around him. It is almost certain that of those architects who read this, some have been handicapped, are now physically handicapped in some way or have a close member of the family physically handicapped.

We believe that the architect should begin the design process by spending some time in a wheelchair. He should experience the frustrations and humiliations encountered in dressing, opening a locked door, washing at a wrong-level basin or preparing a meal using one hand. He might even try taking the wheelchair to a local building that has a four-inch curb in front of the entrance.

A few architects in Canada, such as Raymond Moriyama, have done much to break down the physical barriers, but it is a task for the entire architectural profession. The elimination of small barriers could well pave the way to better public understanding and an eventual breaking down of the large barriers that confront the disabled among our population.

Robert Gretton

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A VISUAL ESSAY

In this section, researched by assistant editor Brenda-Lee Bishop, Audrey King points out some of the design aspects viewed from a wheelchair. Miss King is a graduate student in special studies at the Ontario Institute for Studies in Education.

The places visited are: The Ontario Science Centre, Ontario Place, The Four Seasons Hotel, her workplace and her apartment. Photographs are by our staff photographer, Art James.

1. A wheelchair person must use a stick to reach the top buttons on an elevator.

2. This picture of a modern apartment building demonstrates that some entrances are deceptive. Here, the handicapped person takes his hand off the wheelchair or steering control to open the door and the chair rolls back down the incline. Many doors, incidentally are too heavy for someone in a wheelchair.

3. Ramp leading to a Leaside apartment, an accessible approach for a wheelchair user.

4. These pictures show how handicapped people must travel when they cannot board a bus or taxi.

5. A subway entrance: inaccessible to a wheelchair person.
A fountain too high to allow a handicapped person to get a drink of water.

Typical of most theatres is this auditorium at the Ontario Institute for Studies in Education. Two removable chairs would prevent the wheelchair from blocking the aisle.

A series of steps to the main entrance blocks off this approach. The only access is through the delivery entrance at the back of the building.

Approach to the Four Seasons requires help from an assistant to get over the curb.

Escalators: another architectural barrier.

A beautifully approachable washroom at the Four Seasons Hotel. The wheelchair fits under the sink allowing the user to reach the taps. Mirrors are low enough for viewing.

This is not always the case in a public place as shown at the Four Seasons Hotel.

Here at the new Four Seasons shopping complex the only way to the theatre is down an escalator and then more steps. Theatres are the worst offenders of this handicap barrier.

A growing trend in fashion stores but frustrating for the wheelchair person is the split level concept seen here at the Four Seasons shopping complex.
ONTARIO PLACE

15 Ramps at Ontario Place, accessible to the wheelchair user.

16 A frustrating approach to the Ontario Place forum.

17 Steps prevent entrance to the forum. Close by is a ramp recently added but so steep it is impossible to go down alone. A lower level approach to the forum would take at least 20 minutes to get to from this point.

18 A wider door allows a wheelchair user access to a toilet at Ontario Place. But...

19 Architectural landscaping can create barriers for a disabled person. A gravel base makes it difficult to manoeuvre a wheelchair.

20 Three steps between one level and another at Ontario Place looks insignificant but means going a considerable distance to get around the obstacle.

21 Drawing of battery-operated wheelchair designed by Canadian industrial designer Douglas Ball. The sketch shows battery, motors, hydraulic unit and tracks. The chair is patent pending.
ONTARIO SCIENCE CENTRE

21 Admittance to the Youth Craft building at Ontario Place is blocked off to the wheelchair user because of one step.

22 A directional map of Ontario Place, low enough for everyone to read.

23 In contrast, a modern phone booth designed without regard for a wheelchair person.

24 In the Ontario Science Centre: some thought has been given to the handicapped. Here, at the lower level, there is a bevelled ramp making the sidewalk to the road level an incline. The disabled can push directly onto the sidewalk.

25 Ramps! The problem with these is that they are often too steep to climb in a chair. Frequently, a handicapped person is scared to travel down.

26 This is an excellent viewing arrangement. Frequently handrails are placed at eye level of a wheelchair person.

27 Steps prevent a wheelchair user from getting a closer look at the Banting-Best display.

28 A telephone booth at the Science Centre, at a height appropriate to a wheelchair level. It's so convenient you can get your legs underneath the table.

29 The Ontario Science Centre: elevators have been introduced for the disabled and the elderly — and they work fairly well.
AND OTHER PLACES...

30 A water fountain designed for children but too low for someone in a wheelchair.

31 Access to the exhibits is a major criticism. Here, the incline is too steep for a wheelchair user.

32 A concrete ramp leading to the front entrance of the Royal Ontario Museum was recently built to allow the disabled access to the front entrance.

33 McLaughlin Planetarium: no front access for a wheelchair user who must phone ahead and be brought through the freight entrance to be admitted.

34 Public pressure forced the installation of this heated ramp at Thorncliff Public Library. Greater consideration at the planning stage could have avoided this.

But: for Audrey King, the struggle is never-ending.