

VIRTUAL REALITY

ROLL-THROUGH BLUEPRINTS

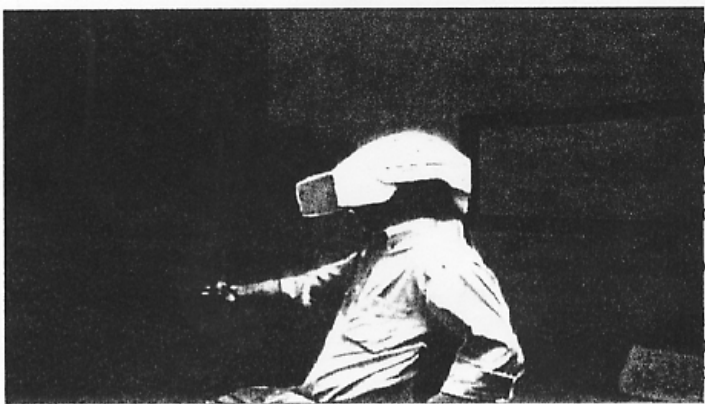
For someone in a wheelchair, a vertical inch can seem as high as a mountain. That's why the idea of taking a wheelchair for a spin through a building before the structure is built is so appealing. The Wheelchair VR system, developed by John Trimble of Chicago-based Prairie Virtual Systems, enables an architect to do just that—virtually.

The system's virtual world is rendered from AutoCad files on a 486-based PC. A person in a wheelchair puts on a Virtual Research flight helmet equipped with electromagnetic motion trackers. Objects are manipu-

lated via a Dataglove from Greenleaf Medical Systems. The architect can point to a representation of a windowsill, for example, and make it higher or lower, or widen a door if it's too narrow.

Trimble co-developed the program while director of the Hines Rehabilitation Research and Development Center, which has a large number of disabled veterans who assisted in testing early versions of the system.

One of the first test drives was for the Copley Memorial Hospital under construction in Aurora, Ill. The hospital planned to incorporate a radically designed patient room, modeled on private apartments, and Trimble was



Wearing a Dataglove and helmet, a person in a wheelchair tests a building design.

asked to verify that wheelchairs could navigate through this space. One of the problems the Hines testers uncovered was that the faucet knobs on the hospital sinks were too far back to be reachable from a wheelchair.

The testers also told Trimble that his

system, which placed their wheelchairs on stationary rollers much like an exercise bike, didn't feel realistic. Trimble then switched to more sophisticated navigation equipment that enabled the wheelchairs to rove around. —Larry Krumenaker