Blind architect creates buildings you can hear and feel, including the UPMC Vision Institute

Chris Downey will speak Thursday on the North Side for the Green Building Alliance

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If you are blind, varying floor textures and using the sounds of spaces to determine location and direction are more than nice design elements.

A San Francisco-area architect who survived a brain tumor that caused blindness is spreading the good word on universal architectural practices that benefit everyone, especially people with visual impairments.

Architect Chris Downey, 62, is the keynote speaker for the Green Building Alliance Inspire Speakers Series on Thursday, Feb. 20, at MuseumLab on the North Side.

He consulted on the UPMC Mercy Pavilion, home to the UPMC Vision Institute and UPMC Rehabilitation Institute, which opened in Uptown in 2023.

Universal design seeks to accommodate all users, including those with sight issues, while also providing wellness features including temperature control and healthy indoor air quality, said Jenna Cramer, president and CEO of Green Building Alliance in Pittsburgh.

The American with Disabilities Act includes specifications for sidewalks, curb cuts, bathroom designs and other help for accessibility, but these universal design principles are not currently required by building codes, she said.

“We hope that our audience will be inspired by Chris, his projects and by all of the speakers on our program to look beyond ADA standards when thinking about accessibility and inclusivity in spaces,” she said.

The UPMC Mercy pavilion speaks another language via textures and acoustics. Downey consulted on the primary flow and sequence of moving through the new UPMC facility.

His designs consider how a building sounds, feels and smells. He first considers questions such as: How do you approach the entrance? Where do you find the front door and how do you find the reception area?

Downey can figure those things out because he was a practicing architect before he became blind 17 years ago. While losing his sight, he "aggressively" set out to train himself. Then he hit the streets alone six months after total vision loss.

Downey, who retained strong visual memories, said he experiences the world as an architect who learned the challenges firsthand living in a world built for those who can see.

"If you are blind approaching stairs, you don't know how you will find them. That is a different kind of experience," he said.

Someone in a wheelchair can see stairs and avoid them. A blind person may not be aware until it's too late.

Using your senses

When encountering unfamiliar soundscapes, Downey has come up with ways to navigate. He can find a restroom in an airport by listening for a particular sound. With no doors, the loud hum of hand dryers is telltale.

"They are awesome and you can head in that direction," he said.

However, he knows to check the signage or ask someone for the correct bathroom. "I've done that before," he said.

Without vision, you can still extend your sensory reach well beyond your body, Downey said.

Acoustics fascinates him; the sound of space communicates transitions of where you walk.

At the entry of a building, different textures of flooring create different sensations and sounds and can allow visually impaired visitors to discern the primary path from sitting areas. You can hear a doorway before reaching it, Downey said.

"If you are a cane user, you might tap the cane on the ground, listening for sound waves that hit surfaces and hit your ears. That allows you to spatialize the area around you and hear openings."

As someone who listens to architecture, Downey designs elements that improve spaces' sensory reach for others. In addition to textures

discernible by the touch of a cane or underfoot, he sometimes creates high visual contrast for those with failing eyesight or other disabilities.

“When thinking about textures and touch, when you approach things like a reception desk or elevator control buttons, you design them to be more forgiving for imprecision,” he said.

“When you can’t see something, you don’t know what you will hit when you reach out. So you provide soft edges and corners to anticipate imprecise hand gestures.”

He also provides lighting that maximizes visual acuity — even, diffused light without shadows. He notes that older eyes can take longer to adjust to lighting changes.

With 3D technology, Downey can design the soundscape of buildings someone will experience as they walk through them.

“I wanted to anticipate the experience and be more creative with curating those experiences.”

Someone with Downey’s sensibilities provides a unique opportunity to teach others, Cramer said.

“Bringing in an architect such as Chris, who experiences vision impairment, to participate in the design process results in the creation of spaces that are better for all users and occupants, including those experiencing visual disabilities,” she said.

UPMC Mercy Pavilion

Dr. José-Alain Sahel, M.D., director of the UPMC Vision Institute, came from the Institut de la Vision in Paris in 2016. One of the first thing he noticed was that facilities for eye patients were perched atop Oakland’s steep “Cardiac Hill.”

“I was struck that this place was poorly accessible to patients on a slope and a hill,” he said. “This place was not for someone suffering vision problems and people up in age would not feel comfortable.”

While in Paris, Dr. Sahel worked with architects supporting a holistic patient-centric approach to design.

He knew about architectural considerations for mobility and navigation including floor textures, placement of sitting areas and lighting considerations.

UPMC contracted with the global design and engineering firm HOK, which included Downey as a consultant.

“I was really impressed they had a blind architect and thought it would really help in the design of the building,” said Dr. Sahel, who is also chair and a distinguished professor in the Department of Ophthalmology at the University of Pittsburgh School of Medicine.

The Vision Institute’s new location is attracting more patients and providing more services throughout the region than in the past, he said.

The UPMC Vision Institute treated about 150,000 patients last year, almost double its patient load five years ago. It offers an Urgent Eye Care Clinic and a medical van reaching hundreds of patients who receive free care.

Some of the more common treatments include cornea disorders, diabetic retinopathy, glaucoma, macular degeneration and genetic retinal dystrophies.

UPMC implanted the first wireless retinal device in 2020 in patients with advanced age-related macular degeneration, a disease that can lead to permanent blindness. Dr. Sahel initiated the clinical trials, attracting patients from around the world.

The institute has made great progress in the last two decades in glaucoma surgery at a time when vision problems develop predominately with geriatric patients, he said.

Almost 20 million Americans — 8% of the U.S. population — are visually impaired, which is one of the leading causes of loss of independence among people age 65 and older.

“An issue is access to care,” Dr. Sahel said. “Even people who have good medical coverage, blindness and low vision can be treated but you have to provide access to that care.”

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