

ACCESSIBLE EVACUATION

Improving Fire Safety + Building Evacuation for People with Disabilities



olivia mae asuncion
university of oregon

RESEARCH METHODOLOGIES

CASE STUDY ANALYSIS

Comparing two buildings at the University of Oregon campus that are different based on the following criteria:



LAWRENCE HALL

JOHN E. JAQUA ACADEMIC CENTER

CRITERIA	LAWRENCE HALL	JOHN E. JAQUA ACADEMIC CENTER
Originally built?	1901	2010
Remodeled?	X	
Primary Users?	Students	Students
Square Footage	154,142	15,557

INTERVIEWS

A small sample of interviews were made to get a glimpse of what the potential issues are with the accessibility of evacuation methods. All interviewees spend most of their time on campus at the University of Oregon, either as students or as employees. Two of the subjects have physical disabilities. Four subjects do not have visible disabilities: three spend most of their time in Lawrence Hall, one spends most of her time at the Jaqua Center.

"...GIVEN THE NUMBER OF PEOPLE WHO CANNOT FIND THEIR WAY DAILY UNDER NORMAL CONDITIONS, I WOULD IMAGINE A TRUE EVACUATION EMERGENCY WOULD BE A REAL DANGER TO MANY PEOPLE."

-- Kassia Dellabough, Director, Office of Professional Outreach & Development for Students

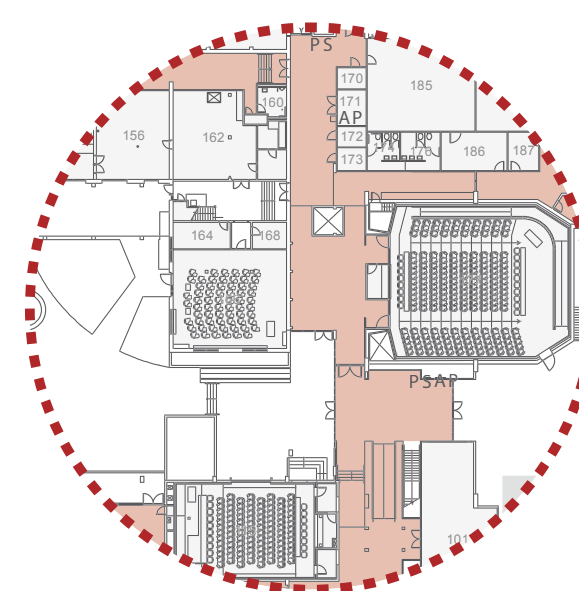
"SOMETIMES, IN HOTELS, I'LL ASK FOR AN ORIENTATION, BUT USUALLY I AM TOTALLY UNPREPARED TO EVACUATE A BUILDING."

-- Audrey Medina, Blind woman with minimal peripheral vision

FUTURE OF THIS RESEARCH

- A larger sample size of buildings analyzed can give a better idea of the breadth of this problems, as well as explore and determine strategies that work and those that do not work
- A larger sample size of interviews. By exploring a wider range of disabilities, including invisible disabilities, more issues that need to be solved can be discovered, making the research more complex, but still a necessary step.
- Exploring the economic implications of these solutions and creating cost-benefit analyses.

WHAT ARE THE ISSUES?

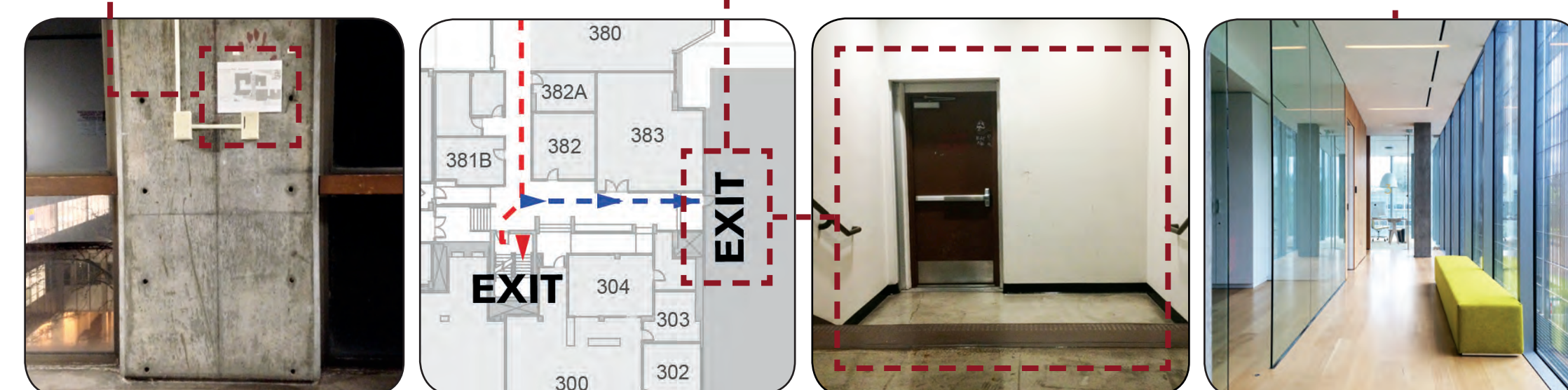


ILLEGIBLE BUILDINGS

Evacuation maps are often too high and too small

Inaccurate evacuation maps, like the third floor map in Lawrence Hall, shows an accessible egress path that leads to steps

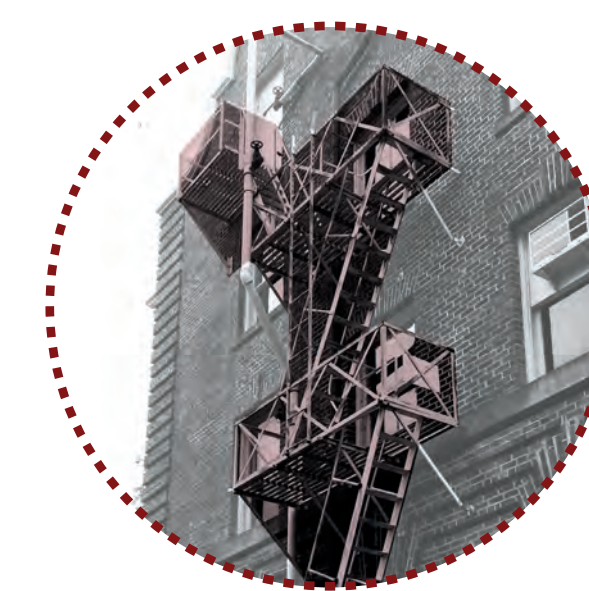
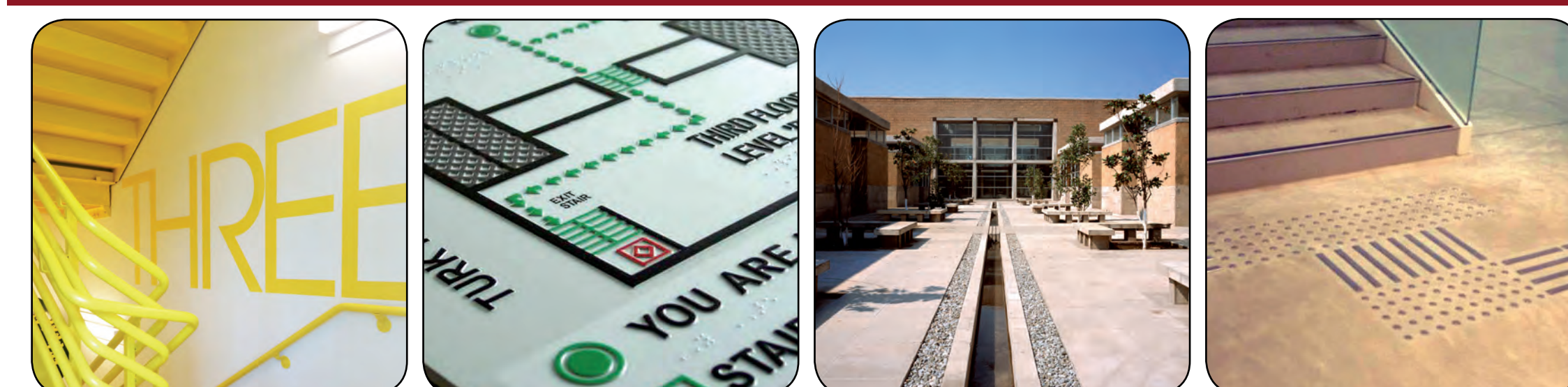
Confusing circulation at the Jaqua Center



Environmental graphics can both be decorative and improve wayfinding

Color-contrasted and tactile maps for people with vision impairments

Texture, color, daylighting, and simple circulation can create beautiful and visually-accessible spaces



INACCESSIBLE MEANS OF EGRESS

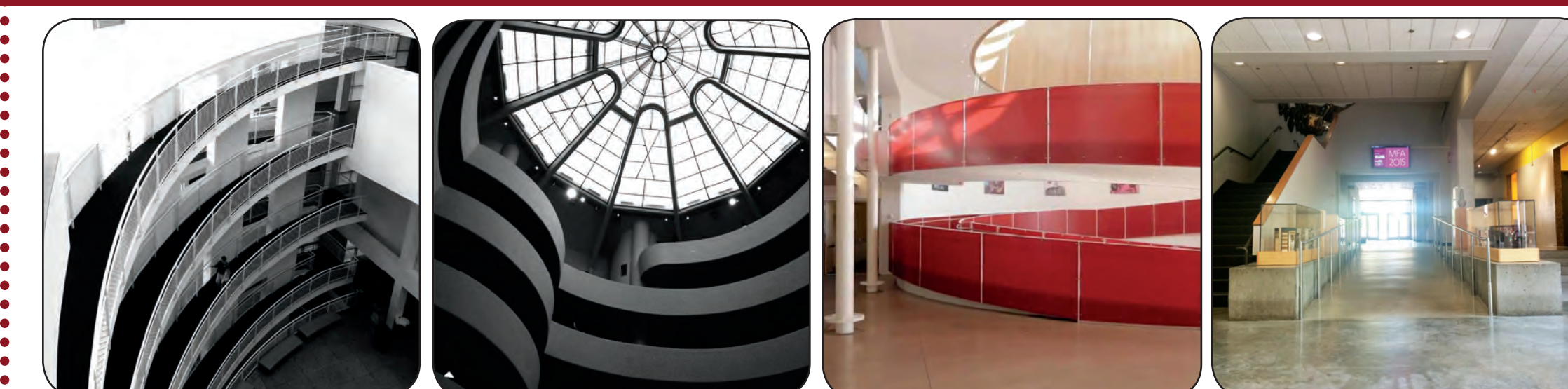
Lack of consideration during maintenance leaves egress pathways inaccessible

All glass building hides the location of doors at the Jaqua Center, making exits invisible



Multi-story ramps, like ones found in many art museums can make evacuation more independent for those with mobility impairments

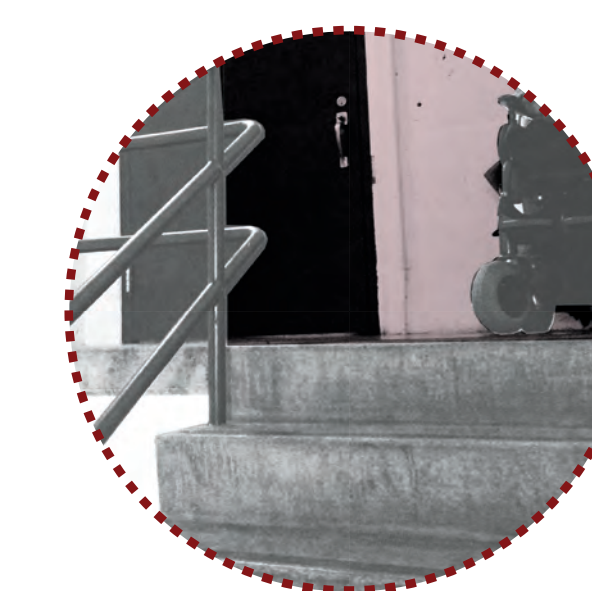
Exit doors and egress are easily located in Lawrence Hall, even by those with low vision through use of axes, and color + light contrast



"[THE FIREFIGHTERS] WERE AMAZED - A BUILDING FULL OF PWDS (PERSONS WITH DISABILITIES) HAD EVACUATED BEFORE THE FIRE DEPARTMENT HAD EVEN ARRIVED."

IT JUST SHOWS - UNIVERSAL DESIGN REALLY IS GOOD DESIGN. AND SAFE DESIGN TOO!"

-- Dmitri Belser, President/CEO of the Ed Roberts Campus



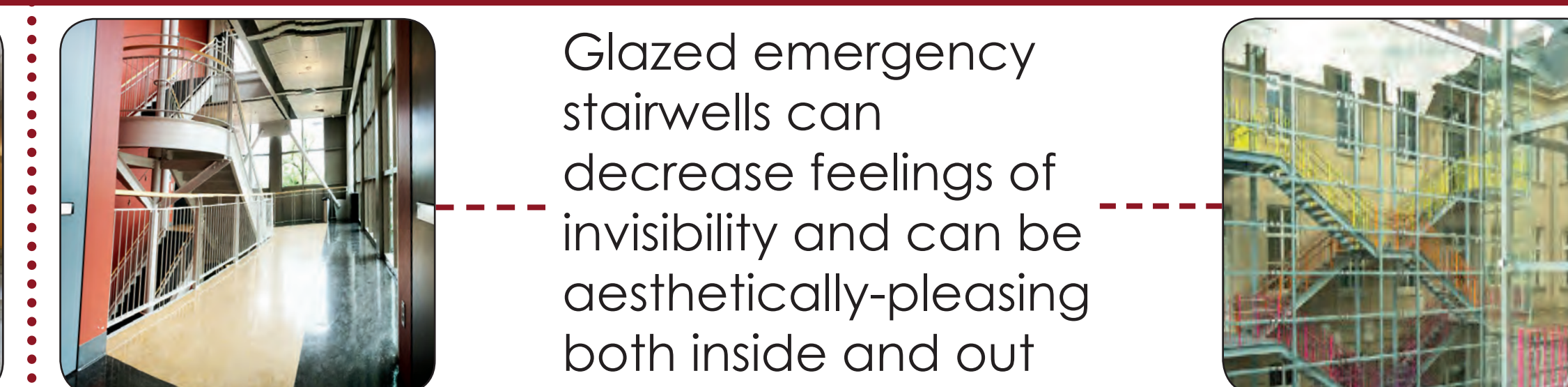
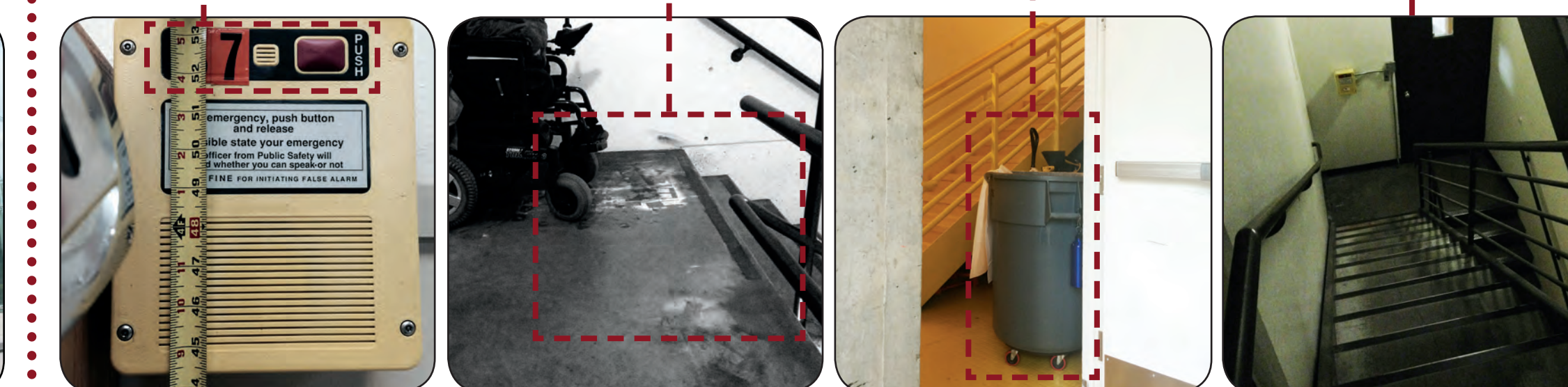
INADEQUATE AREAS OF REFUGE

Call boxes are often too high for people in wheelchairs to reach

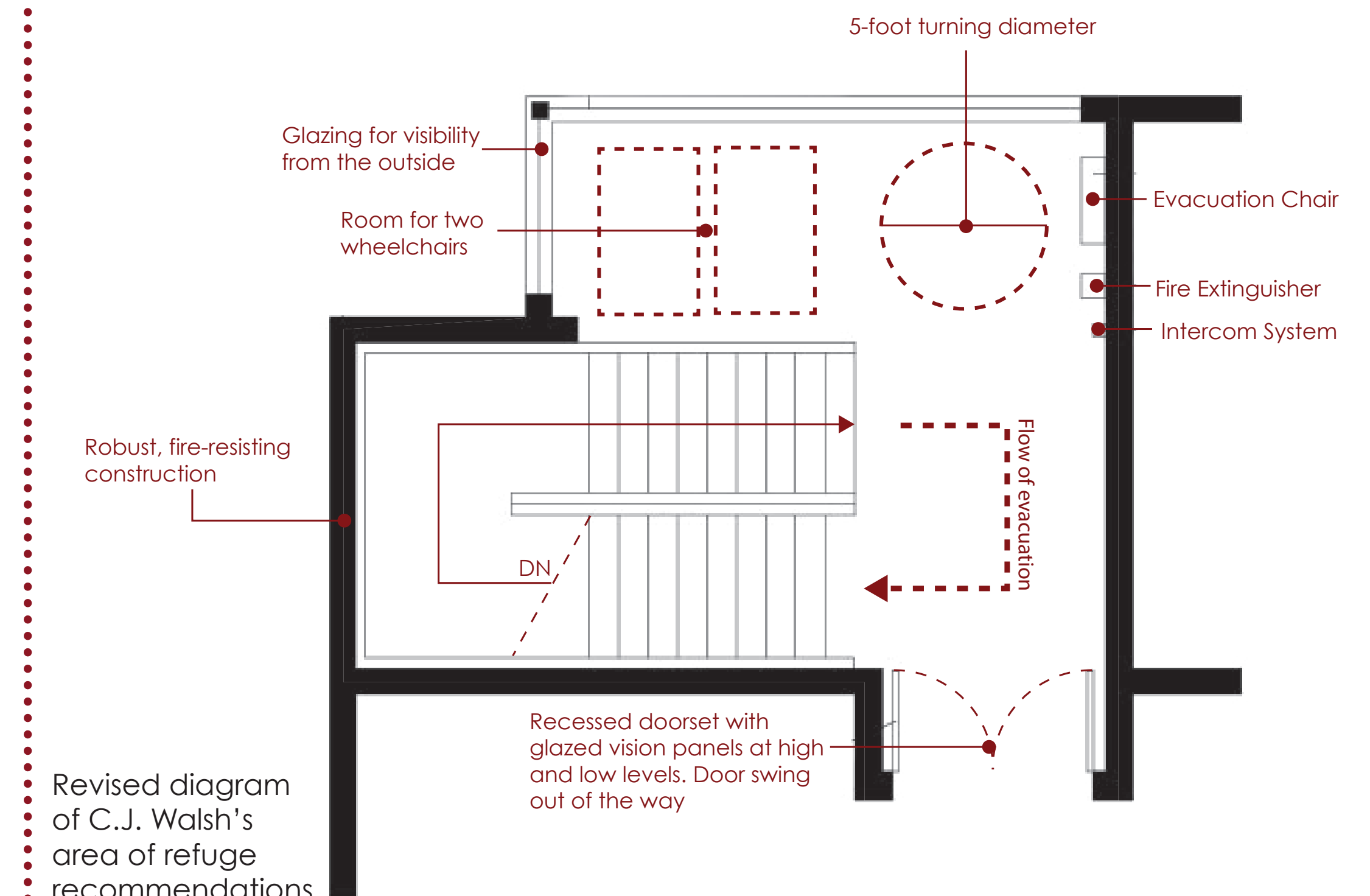
Stairwells in Lawrence is too small to fit a wheelchair and have a safe flow of ambulatory evacuation

Stairwell exits become inaccessible because of storage use

Stairwell conditions are often inhabitable



Glazed emergency stairwells can decrease feelings of invisibility and can be aesthetically-pleasing both inside and out



POTENTIAL SOLUTIONS

Rescue elevators, which are getting cheaper and faster can allow for accessible vertical egress. The rescue elevator, shown here, was part of the Statue of Liberty's Life and Safety renovation in 2012.

Assistive technology is improving the way that people with ambulatory disabilities interact with the built environment. The SoftWheel shown here, for instance, can allow wheelchairs to go down stairs.

Handheld technology now has the capability to navigate inside buildings through indoor positioning systems that uses wifi and Bluetooth networks.

SOLUTIONS OUTSIDE OF ARCHITECTURE

Given that the sole legal responsibility of an architect is to ensure that buildings are safe for its inhabitants, it is necessary to ensure that these provisions are accessible to everybody. These solutions do not just benefit the small percentage of people with mobility and visual impairments. These changes can make architecture beautiful and widely usable, thus gaining the potential to change the term "universal design" into "just design."

INCLUSIVE. SEAMLESS. BEAUTIFUL. SAFE.

*special thanks to nicholas katagiri for the media assistance