

# Universal Design: It's a Wonderful World

The concept of Universal Design may be more than 50 years old, but finally, its simple brilliance is gaining well-deserved traction. If *universal* means something for all people and *design* means the purpose, plan and intention behind an action or object, then **Universal Design** is *the intention that what we do and what we build is suitable for all people*.

Yes, its time has definitely come. Universal Design calls for the diversity and individuality of the human experience to become the DNA of anything we create. Applying Universal Design to physical spaces gives the chance to creatively embrace differences among people through design. Successfully implemented, Universal Design can transform the way we live.

## The Genesis of Universal Design

The concept of Universal Design came on the scene more than 50 years ago; a new foundation for a more usable world. Consider the impact of this early example: the common curb cut. Intended to help those in wheelchairs, the curb cut proved equally helpful for parents with strollers and people pulling wheeled bags or riding bikes across the same streets. That small change, designed to accommodate a particular group, has proven a welcome convenience for everyone.

In 1990 the Americans with Disabilities Act created a set of basic rules that all buildings and public spaces must follow. While it's a good start, Universal Design offers far more potential for inclusion.

In the big picture, Universal Design sets out to improve the usability, safety and health effect of whatever "thing" is being created. Universal Design dares us to look further than differences in *physical* abilities or disabilities. Universal Design asks that we also consider the full range of developmental abilities, such as a child being able to find their way around as well as an adult. It's like a Rubik's cube: does every individual circumstance have a "square" on the cube, and does it align with the others?



The number of Americans 65 and older will more than double by 2060, from 46 million to 98 million.<sup>1</sup> - Mather, M., Jacobsen, L.A., Pollard, K.M. "Population Bulletin: Aging in the United States." Population Reference Bureau. <http://www.prb.org/pdf16/aging-us-population-bulletin.pdf> (accessed October 6, 2016).

"The concept wasn't so much about designing a facility for persons with disabilities. It was really to change the mindset: to design **focused on everybody.**"

-Michael Perry, AIA

# Universal Design in Action

A shared spirit of commitment to Universal Design led to a collaboration between Progressive AE, the YMCA of Greater Grand Rapids and Mary Free Bed Rehabilitation Hospital. Our task? To create a place where recreation, healing, and a healthy, active lifestyle would be equally accessible to everyone.

To give substance to the concept, Progressive AE first hosted in-depth visioning sessions with key project stakeholders to identify goals for the new facility. During those early discussions, it's hard to say who became more inspired. The new facility would come to exemplify the YMCA's and Mary Free Bed's shared commitment to mind-body-spirit wellness and inclusion for an entire community. We would do this by employing the principles of Universal Design. While buildings must comply with the Americans with Disabilities Act, Universal Design goes above and beyond the ADA. It's a voluntary desire to do more. To be better. And that was our goal.

Ultimately, the design of the Mary Free Bed YMCA shows that Universal Design is not only possible, it's amazing. A defining moment during the design phase was zeroing in on circulation as an opportunity to create equality among users. Circulation simply defines how people get around within a space. When considering able-bodied versus mobility-impaired users, circulation is commonly addressed through a "we-they" design solution: one means of getting around is planned for able-bodied people, and another is designed for everyone else. Universal Design teaches us the way people get around is not two stories, but one.

The new Mary Free Bed YMCA would need to include:

- Multiple gymnasiums
- Family and lap pools
- Group fitness classrooms
- Indoor cycling studios
- Climbing wall
- Tennis courts
- Accessible playground
- Playing fields
- Wheelchair softball field
- Greenhouse
- Teaching kitchen
- Learning farm
- Access to public transportation



# Ramp Up for Success Literally

Everyone has appreciated the value of a ramp when stairs are not an option because of a wheelchair, crutches, stroller or age. One of our many conversations with stakeholders led to the question: what if a ramp was *the only* source of vertical circulation? Suddenly, everyone would be equal in the way they navigate the facility while reinforcing healthy living. And so, the ramp concept became the cornerstone by which everything else would follow.

The centrally-located ramp at the Mary Free Bed YMCA is an architectural feature that helps people orient themselves within the facility and find their destinations more easily. The ramp is meant to be a human thoroughway that simultaneously invites interaction, encourages safe passage and ensures enjoyable trekking from point A to point B.

The ramp may seem like a deceptively simple solution, yet it presented a number of challenges, including:

- Creating a primary mode of transportation that embraces foot traffic, wheelchairs, children and seniors, and people with vision challenges.
- How to accommodate people who will be moving at different speeds.
- Choosing the correct surface to ensure safety for all users.

You get the idea. We challenged ourselves to answer every question through the experiences and voice of every possible user. With the main mode of circulation established, we switched our focus to athletic environments within the facility—the gyms, ball courts and swimming pools. Indeed, the aquatic environments would prove to be almost as rewarding as the ramp.

There are exactly **zero** stairs throughout the 120,000 square foot Mary Free Bed YMCA and its 36-acre campus.

## The Deep Dive

For the YMCA's aquatic center, we fully immersed ourselves in the needs of the many different water users we serve, with and without disabilities. The systems that manage water, air, light and sound quality present unique Universal Design opportunities that affect every aquatic experience. Each system applied inclusive principles to enhance results.

We started by teaming a chlorine water treatment system with ultraviolet sanitation. Together, these systems produce cleaner, safer water.

For users who may be vulnerable to eye or respiratory irritation, we installed advanced air circulation and ventilation. The ventilation system pulls fresh air across the water surface to remove air contaminants (chloramines) that affect respiratory comfort.

For lighting, competition-level lighting ensures visual support for all users. Direct LED fixtures reduce glare and accommodate the vision impaired. Acoustics are an often-overlooked issue for

indoor pools. The hard surfaces cause sound to echo or reverberate, making it loud and difficult to hear. By using high-tech sound-absorbing materials on the ceiling and walls we were able to improve these conditions.

Finally, we one-upped the code-required pool lift with a transfer station. This simple system frees people with disabilities by creating a way for them to independently get in and out of the water. And a 20-person therapeutic whirlpool ensures everyone can find a pool to meet their needs.

# Color Me Usable

In a universally designed facility, it must be clear to all people (be it a person who can't read or one who is vision impaired) how to find what they are looking for. Just as a teacher addresses multiple styles of learning, Universal Design offers multiple ways to interact with a facility. One of those ways is the science of color.

The brain triggers physiological responses to different colors. Even different hues can influence the mental state. Understanding this science and applying it to a building is one of the newer facets of Universal Design, often called Color Universal Design.

Color Universal Design complements other tactics. Properly executed, color can convey and connect information. Universal Design requires that designers take it further, considering the vast deviations of individual color vision. For example, what about those who

see no color at all? And the red I see could be very different than the red you see, even though we're looking at the same swatch.

Color Universal Design seeks:

- Simple color schemes to accommodate the very young and the very elderly, in addition to individual color vision.
- A combination of shapes, positions, line types and coloring patterns help convey information for those with color blindness.
- To state color names where they are expected to be used in communication, ensuring multiple modes of understanding.

Color Universal Design is still evolving, but its current state is scientific and sound. By incorporating Color Universal Design and shape planning, we can help users feel confident finding their way and exploring amenities.

“The question we must ask is not what the world would be like without Universal Design, but **why** we would choose to live without it?”

*-Peter Blanck, PhD, Chairman, Global Universal Design Commission*

## Color Coding the Mary Free Bed YMCA

Taking Color Universal Design to task, designers identified an overall palette for the YMCA based on three factors:

1. Psychological effect
2. Adherence to Universal Design standards
3. Representation of the YMCA brand

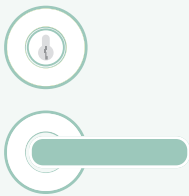
Implementing those factors helped us determine that brighter shades can indicate a change in architecture and help people find their way. Grey, which provides a mental break from targeted color counterparts, would guide movement between distinct areas. And blue is an “intellectual” color with a soothing effect, so it was chosen to represent areas requiring active thinking or connectivity to water.

Pairing color with specific shapes, lines and positioning provides those with color-impaired vision to benefit from signage, too. Color Universal Design requires meticulous planning to be effective. Yet, done right, all users naturally begin making associations that enhance usability.

# Americans with Disabilities Act and Universal Design:

## What's the Difference?

There is often confusion around the differences between ADA and Universal Design. To help, remember this: spaces that are ADA compliant are not necessarily Universal Design, but all universally designed facilities are ADA compliant. This is because Universal Design goes above and beyond the requirements of ADA to address the needs of all people. For example:



Lever door handles ensure those with limited hand function can open doors.



Seamless transitions mean able and disabled persons can navigate a building along the same path.



Use of natural lighting helps persons with vision problems see more clearly.



Good seating options, with supportive backs and solid arms, allow them to be used by a broad range of people.

### 7 Principles of Universal Design



#### Diverse

1. Equitable use - The design is useful to people with diverse abilities.



#### Flexible

2. Flexibility - The design accommodates a wide range of individual preferences and abilities.



#### Intuitive

3. Simple and intuitive - Use of the design is easy to understand, regardless of the user's experience, knowledge or language skills.



#### Perceptive

4. Perceptible information - The design communicates necessary information effectively to the user, regardless of ambient condition or the user's sensory abilities.



#### Minimal Hazard

5. Tolerance for error - The design minimizes hazards and the adverse consequences of accidental or unintended actions.



#### Low Effort

6. Low physical effort - The design can be used efficiently and comfortably and with minimum fatigue.



#### Appropriate Space

7. Size and space - Appropriate size and space is provided for approach, reach and use regardless of user's body size, posture or mobility.

# Thinking Universally Has its Rewards

While there are many more chapters to the story of the Mary Free Bed YMCA, our purpose here is to encourage others to explore and apply Universal Design theory to their work. Just as sustainable practices have been embraced in the past, the same attention is now to being given to adoption of Universal Design as a standard.

**Mary Free Bed YMCA opened in December 2015 and was the first building in the world to be certified in Universal Design by the Global Universal Design Commission (GUDC).**

The GUDC was established to help develop Universal Design standards for buildings, products and services. Their team was immensely helpful as we sought to maximize the Universal Design outcome of the Mary Free Bed YMCA project.



## Have Questions?

Let us know!



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